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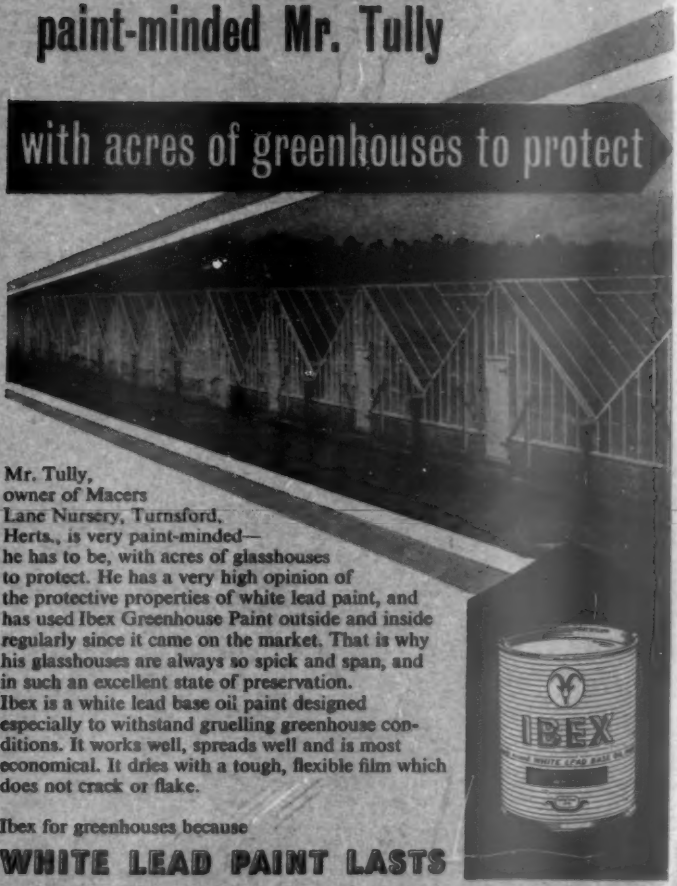
VINCENT SQUARE, LONDON, S.W.1

"Ibex—from experience" says paint-minded Mr. Tully

with acres of greenhouses to protect



Mr. Tully,
owner of Macers
Lane Nursery, Turnsford,
Herts., is very paint-minded—
he has to be, with acres of glasshouses
to protect. He has a very high opinion of
the protective properties of white lead paint, and
has used Ibex Greenhouse Paint outside and inside
regularly since it came on the market. That is why
his glasshouses are always so spick and span, and
in such an excellent state of preservation.
Ibex is a white lead base oil paint designed
especially to withstand gruelling greenhouse con-
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economical. It dries with a tough, flexible film which
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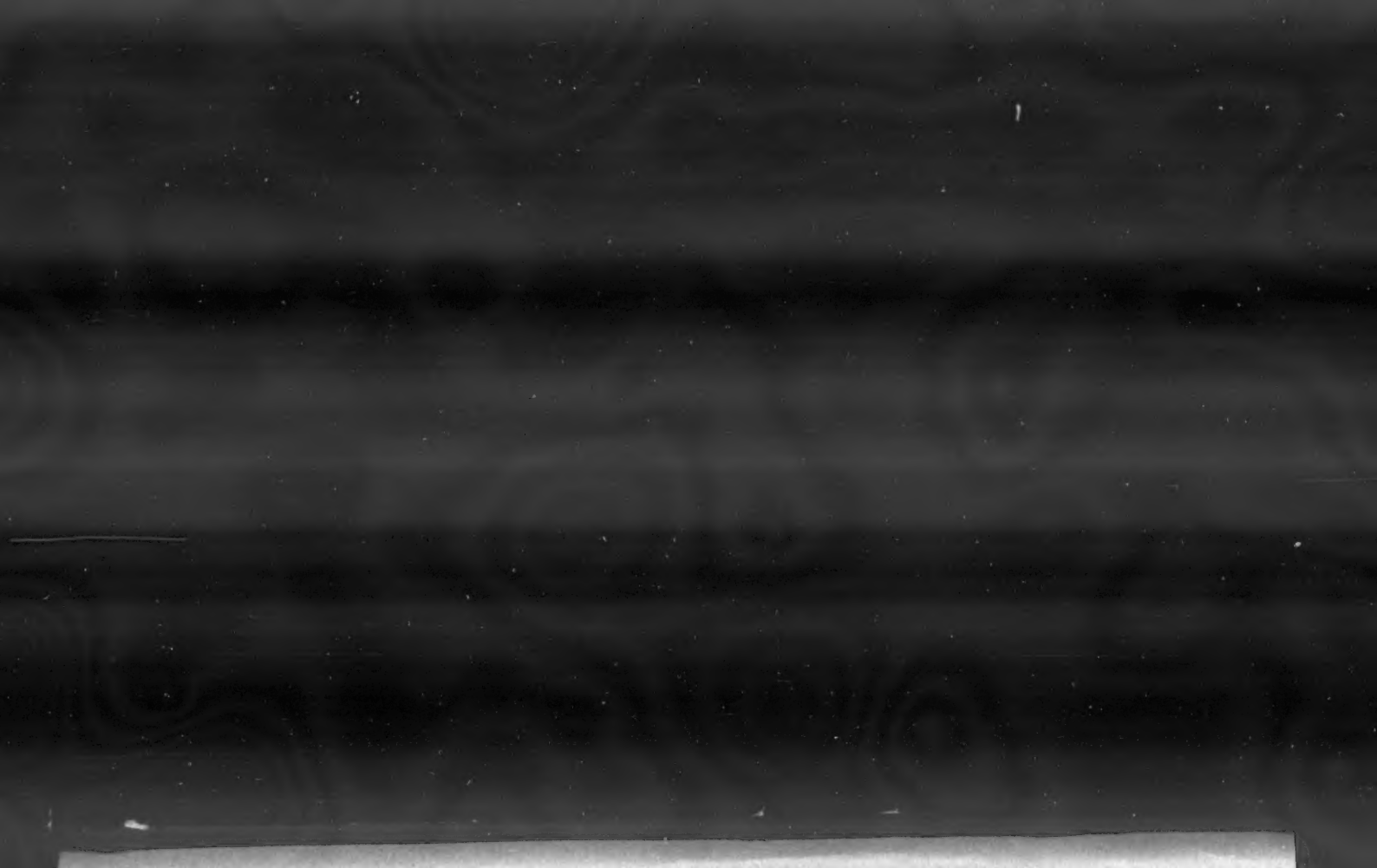

JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY

VOL. LXXXIII PART SIX

June 1958

THE SECRETARY'S PAGE

ANNOUNCEMENTS—JUNE AND JULY

Shows

TUESDAY, June 3 12 NOON to 6 P.M. WEDNESDAY, June 4 10 A.M. to 5 P.M.	Fortnightly Flower Show, Cactus and Succulent Society's Competition and Geranium Society's Competition, in the New Hall. British Iris Society's Show, in the Old Hall.
TUESDAY, June 17 12 NOON to 6 P.M. WEDNESDAY, June 18 10 A.M. to 5 P.M.	Fortnightly Flower Show, Flowering Tree and Shrub Competition, Cactus and Succulent Competition for Amateurs (Sherman Hoyt Trophy) and British National Carnation Society's Competition, in the New Hall.
FRIDAY, June 27 11 A.M. to 7 P.M. SATURDAY, June 28 10 A.M. to 5 P.M.	National Rose Society's Show. (Both Halls on June 27; New Hall only on June 28.)
TUESDAY, July 1 12 NOON to 6 P.M. WEDNESDAY, July 2 10 A.M. to 5 P.M.	Fortnightly Flower Show, in the New Hall. Delphinium Society's Show, in the Old Hall.
TUESDAY, July 8 12 NOON to 7 P.M.	National Sweet Pea Society's Show, in the New Hall.
TUESDAY, July 15 12 NOON to 6 P.M. WEDNESDAY, July 16 10 A.M. to 5 P.M.	Fortnightly Flower Show and Fruit and Vegetable Competition, in the Old Hall.

Shows—*continued.*

SATURDAY, July 19 12 NOON to 7.30 P.M.	British National Carnation Society's Show, in the Old Hall.
TUESDAY, July 29 12 NOON to 6 P.M. WEDNESDAY, July 30 10 A.M. to 5 P.M.	Fortnightly Flower Show, in the Old Hall.

Lectures

TUESDAY, June 3, at 3 P.M. "Propagation by cuttings; recent Research and its application", by MR. R. J. GARNER, M.SC., N.D.H.

TUESDAY, June 17, at 3 P.M. "Climbers and other Plants for Walls", by MR. G. H. PRESTON, F.L.S.

TUESDAY, July 1, at 3 P.M. "Sweet Peas", by MR. B. R. JONES.

TUESDAY, July 15, at 3 P.M. "Daylilies", by MR. H. J. RANDALL, C.B.E.

TUESDAY, July 29, at 3 P.M. "Varieties of Clematis and their cultivation", by MR. G. R. JACKMAN.

Demonstrations at Wisley—The following demonstrations will be given at Wisley, that on the succeeding day or days being in each case a repetition of that given on the first.

July 2–3. Summer Pruning of Fruit Trees. (Commencing at 2 P.M.)

July 16, 17, 18. Vegetative Propagation of Shrubs and Herbaceous Plants. (Commencing at 2 P.M.)

Lily Group Meetings—The Lily Group will hold its second meeting of the year in the Restaurant of the Old Hall, at 4.30 P.M. on Tuesday, June 17, when there will be a discussion on "Lilies in Pots".

Arrangements have been made for members of the Group to visit the Royal Botanic Gardens, Kew, on Saturday, July 5.

There will be a Co-operative Display of lilies at the Fortnightly Show on July 15 and 16, as no competitions for lilies are being held in 1958. Members of the Lily Group are invited to bring or send lilies for this Co-operative Display. SIR FREDERICK STERN, the Chairman of the Group, has kindly undertaken to supervise the staging of this display. Any member who would like to supply flowers for this exhibit is asked to let the Secretary of the Lily Committee know, on or before the preceding Wednesday, the names of the lilies he proposes to supply and the number of stems, so that the necessary arrangements in regard to space, etc., may be made and cards prepared showing the names of the lilies and the names of the exhibitors.

There will be an "Any Questions?" Meeting at 4.30 P.M. on Tuesday, July 15, in the Lecture Room in the New Hall.

At 7 P.M., on the same day, members of the Lily Group and their friends will dine together in the Restaurant of the New Hall.

Gardeners' Sunday—On the last Sunday in June many gardens all over the country will again be open to the public in aid of the

Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund. This comparatively new scheme was unfortunate last year because the day was wet, and the joint committee earnestly hopes that the result for the third year will greatly exceed that of the first two.

The Gardeners' Royal Benevolent Institution urgently needs funds to maintain and endow its residential country home for old gardeners and their wives and widows, as well as for its work of providing pensions and grants for retired gardeners living in distressed circumstances in their own homes. The Royal Gardeners' Orphan Fund has recently raised the amount of the allowance provided for the fatherless children of gardeners, but the Fund's assured income is insufficient to meet the increase.

Fellows who are prepared to open their gardens on "Gardeners' Sunday"—the last Sunday in June—are invited to communicate with the Secretary, "Gardeners' Sunday", 92 Victoria Street, London, S.W.1. It is also hoped that many Fellows and their friends will support the gardening charities by making a point of visiting gardens which are opened under the scheme. A booklet giving particulars of such gardens may be obtained from the above-mentioned address, price 8*d*., post free.

The Gardens of Brodick Castle, Arran—The fate of the renowned and beautiful gardens at Brodick Castle, on the island of Arran, has hung in the balance ever since HER GRACE MARY, DUCHESS OF MONTROSE, died in February last year.

The family trustees have offered the gardens, along with the Castle and its superb art collection and furnishings, to the Treasury in settlement of death duties, but only on the condition that the National Trust for Scotland be asked to look after this wonderful property. The Treasury has agreed and now awaits the Trust's decision. LADY JEAN FFORDE has since offered to give to the Trust the magnificent stretch of mountainous country which rises from the gardens to the summit of Goatfell.

A national appeal has now been launched by the Trust to secure this great heritage for the nation for all time. The Government is contributing, and various charitable trusts and special funds are being approached. Scotland's Gardens Scheme, which in seven years has contributed much to the Trust's own garden fund, has asked that £5,000 from this fund should be allocated towards the Brodick endowment. But at least £10,000 must still be raised by way of the national appeal.

The Gardens Committee of the National Trust for Scotland stepped into the breach last year and voted £700 from its gardens fund to ensure that adequate staff could be retained and the Gardens opened daily to visitors. It is unthinkable that these famous gardens, described in the *Rhododendron Year Book for 1951–2*, should be allowed to fall into decay. The DUCHESS OF MONTROSE had lavished her time and great gifts on every corner and detail. Her wonderful work, which has brought happiness to so many, must surely be continued in the Trust's care.

Contributions towards the £10,000 will be gratefully received

personally by the LADY ELPHINSTONE, D.C.V.O., Convener of the Trust's Gardens Committee, at Carberry Tower, Musselburgh, Midlothian, or by the LADY JEAN FFORDE, at Brodick Castle, Isle of Arran. Alternatively, donations can be sent to the Treasurer, The National Trust for Scotland, 5 Charlotte Square, Edinburgh 2.

Registered Daffodil Names—At the request of the Fourteenth International Horticultural Congress the Society has become the International Registration Authority for Daffodil Names, and in that capacity has published *The Classified List and International Register of Daffodil Names*. This book, which should be used by all who raise, name or exhibit daffodils, may be obtained from the Society's offices, price 6*s*.; by post 6*s*. 9*d*.

Code of Nomenclature—A new edition of the *International Code for the Nomenclature of Cultivated Plants*, as formulated and adopted by the International Commission for the Nomenclature of Cultivated Plants, December 1957, may be obtained from the Society's offices, price 2*s*. 6*d*., post free.

Spray Drift Damage to Crops—An article on "Damage from hormone weed-killers" appeared in this JOURNAL for July 1957. A leaflet entitled "Spray drift damage to crops" has now been published by—and may be obtained from—The Ministry of Agriculture, Fisheries and Food, Publications Branch, Soho Square, London, W.1, free of charge.

NOTES FROM WISLEY

THE NEW BUILDINGS

F. P. Knight, F.L.S.
(*Director*)

IN the spring of 1955 the Wisley Housing Committee under the chairmanship of MR. F. A. SECRETT made a survey of buildings at Wisley Gardens which were used for working and administrative purposes. This resulted in a recommendation to the Council that completely new buildings in which would be incorporated workshops, garage and implement sheds, superintendents' offices and store-rooms, a mess-room, and staff and public lavatories should be erected. The recommendation was accepted and after inspecting three possible building sites it was decided that the most suitable one was in the open field between Battleston Hill and the field which contains the Fruit Collection.

It was realized that the project might be a little in excess of what was actually needed at the time, but bearing in mind a long-term development policy for that part of the Gardens it would be wise to plan for the future.

Preliminary plans were drawn up by MR. FRANK TRUMPER, the Society's land agent, in close co-operation with the Housing Committee and these were amended on more than one occasion until the scheme was finally approved. Tenders were then invited and the contract for building placed with Messrs. R. Holford & Co. Ltd., Guildford.

Work on the site began in late October 1956, and some two thousand cubic yards of mostly yellow sand had to be excavated: this was transported to the northern boundary of the new extension to the car park, where it was consolidated and covered with clinker and provided a much-needed extra space for parking cars on peak visiting days. The winter of 1956–7 was a particularly open one and work progressed steadily and was inspected regularly by members of the Housing Committee and by myself almost daily. I also maintained close contact with MR. SECRETT and benefited by his sage advice on points which arose and had to be settled quickly. Tribute must be paid to Messrs. R. S. Holford's foreman-in-charge with whom it was a pleasure to work. The buildings were completed in the early autumn of 1957 and allocated for their various uses on October 3.

The main block, which measures 90 × 40 feet, houses on the south-east corner a well-equipped carpenters' shop, a paint shop, and on the northern side are the garage, repair shop for implements and vehicles, and a large implement shed, at the back of which has been constructed a platform for storing artificial manure, while at the west end there are four lock-up lean-to sheds for tools, spraying materials, etc. (Figs. 74 and 75). Separated from this block by a large sloping concrete yard is the smaller block, which on the south side houses the office shared by the Battleston Hill and Floral Superintendents, a store mainly for bulbs, a mess-room which is also used as a work-room when the weather is unsuitable for outdoor operations. On the east side are staff lavatories and on the north are new lavatories for visitors.

The staff settled down without delay in their new quarters and the pleasure of having working room with some modern equipment was very soon reflected in output. A peep behind the scenes of the day-by-day maintenance programme required to keep the Wisley property in a reasonable state of repair would confirm that we never get up to date. The provision of new buildings has, of course, released the old ones for other purposes, and advantage was soon taken of the original garage located to the north of the laboratory to convert this into additional cloak-room accommodation for both men and women visitors.

In this block, too, for many years there has been an installation in which was manufactured gas for use in the Laboratory. This has very recently been rendered obsolete because of the provision of an alternative source of supply. It is intended to dismantle the old gas plant and to use the room thus made available for storage purposes for the adjacent Glass Department.

Underneath the cloak-rooms is the laboratory stokehole, in which the boiler was converted from solid fuel to oil burning in October 1957.

This conversion has proved to be a real boon, and we no longer have to wait for the temperature to rise in our rooms in order to work in reasonable comfort when we arrive on cold mornings.

The increase of cloak-room accommodation calls for the provision of regular cleaning and another very helpful decision was made by the Council in converting the upper storey of the student-gardeners' old Hostel, known as "The Pines", into a modern flat in which to house a suitable couple to deal with stoking and cleaning among other duties.

The possibility of using the old carpenters' shop as a recreation room for the student-gardeners is being considered and it is thought to have capabilities!

The old frames in the main frameyard have been replaced by new concrete frames with lights of a handier size.

In Wisley village there have been both improvements to existing cottages and the building of two new ones. The improvements consist of installing indoor sanitation in the six cottages to the north of Chittenden Cottages. This work and that of the conversion described at The Pines was carried out by Messrs. H. Ashenden Ltd., of Guildford, under the general supervision of MR. FRANK TRUMPER and his staff. It now remains to carry out a similar scheme for the six cottages in The Square. The two new cottages constitute Nos. 7 and 8 Chittenden Cottages and complete the scheme originally planned. These were designed by MR. RODNEY TATCHELL of Messrs. Sydney Tatchell, Son & Partners, and built by Messrs. R. Holford & Co. Ltd. and completed early in 1957. One is occupied by the Superintendent of the Floral Department and the other by the Foreman of the Vegetable Trial Grounds.

Through all the activities involved in carrying out the schemes described I have, as Director of the Gardens, had the pleasure of acting as a clearing-house for the numerous questions which inevitably arose. It was comforting to know that when some of these got a bit beyond me I could refer back to the Wisley Housing Committee and to the Society's Land Agent.

PLANTS OF INTEREST AT WISLEY DURING JUNE

LABORATORY WALLS

Abelia schumannii
Jasminum × *stephanense*
Senecio laxifolius

WILD GARDEN

Kalmia latifolia
Lilium rubellum
Magnolias in variety
Meconopsis species
Primulas in variety

WILD GARDEN—(*contd.*)

Rhododendrons in variety
Stewartia species
Styrax japonica

SEVEN ACRES

Colutea arborescens
Crataegus orientalis
Deutzias in variety
Hemerocallises in variety
Iris sibirica

SEVEN ACRES—(*contd.*)
Kolkwitzia amabilis
Neillia thibetica
Philadelphuses in variety
Spiraeas in variety

WEATHER HILL
Buddleia alternifolia
Cytisus battandieri
Roses

VEGETABLE TRIAL GROUNDS
Trial of Summer Cauliflowers

ROCK GARDEN AND ALPINE HOUSE
Allium moly
Antennaria dioica
Aquilegia glandulosa
Campanulas in variety
Cistuses in variety
Coronilla cappadocica
Dianthus species
Erinus alpinus
Helianthemums in variety
Incarvillea delavayi
Leontopodium alpinum
Mertensia sibirica
Ourisia macrophylla
Phloxes in variety
Phyteuma sieberi
Roscoea humeana
Saxifrages in variety
Thymus serpyllum

FLORAL TRIAL GROUNDS
Trial of Delphiniums
" " Paeonies
" " Perennial Lupins
" " Pyrethrums
" " Sweet Peas

HERBACEOUS BORDERS
Anchusa caespitosa
Clematis recta
Delphiniums in variety
Dicentra eximia
Geranium pratense
Lychnis chalcedonica
Rhazya orientalis
Salvia haematodes
Veronicas in variety

AWARD OF GARDEN MERIT COLLECTION
Baptisia australis
Campanula garganica
Dictamnus albus
Geranium dalmaticum
Magnolia sieboldii
Rosa moyesii

BATTLESTON HILL
Abutilon vitifolium
Hostas in variety
Lilies in variety
Magnolias in variety
Meconopsis species
Primulas in variety
Rhododendrons in variety

ASPARAGUS

A. W. Secrett

(*Lecture given on March* 18, 1957, H. V. TAYLOR, C.B.E., D.SC., V.M.H., *in the Chair*)

THE intention of this lecture is mainly to assist growers of asparagus, other than commercial growers. I want to refresh the minds of private gardeners in considering the ways, the habits and the necessities of asparagus and I present the subject under three headings: the Plant, the Plantation and the Production.

It is interesting to note that the name asparagus is very, very old. It is unchanged in Persian, Greek, Latin and English. We cannot, however, go into ancient systems of cultivation; rather we are concerned in growing it here and now, far away in place and time from its original homes.

THE PLANT

Asparagus is an herbaceous perennial propagated from seed, growing fleshy roots from an underground rhizome, which stores food to provide annual extension and to form crowns for the annual growth above ground, which we call asparagus. Murdering the plant above ground by heavy cutting and unfavourable conditions below ground can soon reduce a would-be grower to say "my ground will not grow asparagus".

We must understand its ways, habits and necessities. The habit of growth is covered by the French description: "*L'Asperge, il monte, il marche*", and I will add "*il descende*". The roots, by personal observation, descended 10 feet to water-level in one of my plantations as it was approached by gravel excavations. Also, the old dying roots left worm-like runs for capillary action caused by the sun.

The function of the root obviously is to feed the production of growth above ground, and asparagus is unique in that it produces, annually new rhizomes which in turn send down new roots, before forming new crowns for the following year. The old roots help the plant for a year or two as regards water but gradually die with the rhizome to which they are attached, so that the plant in a few years is some distance from its original site. The plant naturally would spread in any direction, seeking fresh ground, but it is restricted to rows, by the fact that new rhizomes can only develop in consistent moisture and as the sides of the beds are dry in summer the plant keeps to the centre for moisture.

ASPARAGUS VARIETIES

Whatever variety, there is a wide range of type in any one single variety. A variety should be bred and is chosen for its earliness, yield, size, tightness of the bud, colour and shape. There are four main varieties: 'Argenteuil', a pointed bud on a tapering neck; 'Connover's Colossal', a rounded head on a less tapering neck; 'Mary Washington' and 'Martha Washington' with blunt stout buds on stems that taper slightly from the whole length of the shoots. For the private gardener 'Martha Washington' conforms to the requirements of choice. 'Mary Washington' is an American selection from 'Martha' and reputed to be free from rust.

The plant is not only unique in its growth, but also in being dioecious, that is, some plants are male and some female; in a large acreage, about half and half. The male bloom is easily distinguished by its being longer, with six yellow stamens, whilst the female is a round flower. By pressing the external cover the stamens, or ovary, can be seen respectively. The male has little duty to perform in reproduction. The flowers are short-lived, but they provide pollen carried by bees and other insects to females. The male can then devote its energy to sending

up more buds, which predominate in number over those of the female plant, due to the opportunity of the previous year to form more crowns. Male plants produce about 75 per cent more heads than female.

In addition to producing new roots for rejuvenation the female plant bears seed for the perpetuation of the species. Seed is borne in astonishing abundance, five hundred berries with four seeds to a berry, is quite a normal crop. This terrific strain on the plant prevents an abundance of heads, but such as are yielded are usually good and a little heavier than the male. The production of seed is about half male and half female. If seed is produced it must not be cut off as it matures in July, August and September, as such action would deprive the plant of food for storing in the crowns over winter, nor should it be allowed to blow about in wind or gale. In a private garden it may well be tied to a stake leaning over but inserted in ground well away from the crowns.

This sex question assumes more importance under the heading of plantation.

The male plants should look tall, green and well bowered in autumn until the frosts, whilst the females will be yellowing, more sparse and will be carrying their red berries. These indications denote what the prospects are for the following year.

The plant has pests, but the asparagus beetle is the only serious one and that is not prevalent in my experience. Consistent cutting and cleanliness of beds avoids much of the attack. Derris or D.D.T. kills the larvae and beetle. Rust and violet mould are both diseases which may attack asparagus, but the former is not prevalent in England and where necessary may be controlled with a copper spray such as Bordeaux mixture. Violet mould, a mycelium which attacks bruised roots exposed to air, is obviously avoidable. Calcium cyanate will control the weeds (3 oz. per sq. yard), or on a commercial acreage H_2SO_4 (sulphuric acid) at 8 per cent. after a close cut.

Finally under this heading, I refer to annual manures for mature beds. After cutting ends in early June, clean off the beds and apply 3 oz. of muriate of potash, 6 oz. of superphosphate in July–August and 2 oz. of nitro-chalk or nitrate of soda in February per yard run. Do not apply anything but well-matured, rotted dung immediately above the crowns. Artificial manures should be broadcast well away from the crowns.

THE PLANTATION

Asparagus can be grown on almost all soils except chalk. Soils from sand, the most preferable, to heavy loam have produced high yields for me.

The absolute essentials for asparagus are drainage, lime and potash. The crowns will not endure surface water. That is one of many reasons for ridging up beds—to throw off heavy rain. Asparagus gets its water from the water-table below, as mentioned under "The Plant". In regard to lime, observation of other crops will indicate if the soil is alkaline. If rhubarb is excellent, then much lime is needed. If spinach is excellent

then lime can be applied in moderate quantities and annually during the winter. The pH should be 6–7. Potash can be supplied as muriate.

Uniform depth of soil is necessary, otherwise earthing-up with gravel, clay or stones, will spoil shoots as they grow.

A bed of asparagus is to last many years so careful attention at the beginning will be rewarded. Give a good dressing of dung all over the proposed plot with a compound manure of hoof-and-horn, bone-meal and potash, ploughed or dug in. Lay up for the winter—apply 1 cwt. lime (white hydrate) to 16 rod of the plot (3–4 oz. per square yard) to wash into the soil. In regard to drainage, a trial hole will show if drainage is sufficient.

In February take trenches out 4 feet apart, with a good digging fork, leaving the crumbly bottom to weather, with an additional sprinkle of lime to sweeten. We are now ready in April to put the asparagus in the prepared trenches 5 to 6 inches deep. If one-year-old crowns are used these should be placed 15 inches apart and covered with 4 inches of friable soil. But—here is the crux. What stock? What variety? Which sex?

So much preparation! So many years to last!

The variety must be decided. I propose 'Martha Washington'. Now, the indiscriminate harvesting of seed, even of a reputed Washington variety, will yield so many types, as I have said, that buying crowns from such stock will reproduce many types. Breeding true stocks is at last being recognized and even breeders maintain that it is essential to keep up the selection of parents and rogueing of undesirable reversions. Consequently it is better to grow from seed supplied by an asparagus breeder.

In April sow in the trench which has been prepared—rake and level a fine seed bed in the trench about 10 inches wide. Sow about nine seeds to a foot run, in staggered profusion and cover with not more than an inch of fine soil. The next question is, which sex? A sparse bed producing, as years go on, an abundance of seed after June, or abundance of heads before and after June!

For private gardeners, I am sure that disturbance of one-year-old crowns from a seed bed should be avoided. So one-year-old male crowns in an asparagus bed can be acquired in this way. The seed is sown in April. By July examine the growth and pull up weakly plants from the beds, leaving about four or five to the foot run. Keep the trench clean. The following year sex will reveal itself. I have shown the distinction. Now pull up all the females and reserve the males for a few more weeks, or days, then choose the most robust male per foot run and there you have a male bed of asparagus.

We are now concerned with the second year, in which the beds are level—the trench having been filled in by hoeing. In October cut all bower as it yellows to 6 inches above ground level. Do not burn in case of a good fire harming the crowns. Begin annual dressings, 2 oz. sulphate of ammonia, 4 oz. superphosphate and 2 oz. muriate of potash per yard

run of bed. Hoe in and let beds weather down. In February apply nitrate of soda or nitro-chalk, 2 oz. per yard run. After rain, when the soil has dried a little, the beds should be raised slightly with soil from either side in order to retain moisture for the rhizomes in their third year. Repeat this second-year treatment for the third year. Do not cut any heads, however tempting, and the better your assurance will be of a future crop.

In the fourth year from seed you are free to cut and enjoy the fruits of your understanding of asparagus.

THE PRODUCTION

In average small gardens in France, a general practice is to have two or three single plants here and there, in corners and out-of-the-way positions in the garden, combining decorative foliage with other schemes.

The average date of cutting asparagus was April 15, for many years, but recent years have delayed it until April 21. Cut anything edible, as it appears, before the frosts have subsided, because the frost will have it otherwise. After May 15 or so, when damage of frost is past, let it mature. It is mature just before the lower bracts on the bud begin to loosen on the shoot, about 4 to 5 inches above ground, always remembering that asparagus never thickens its stem after it is through the bed. It lengthens but it does not broaden.

The method of cutting. The old saw-blade has gathered many a rich man's meal. The French gauge, shaped like a carpenter's 1-inch gauge, on a shaft with a handle, and about 18 inches long overall, is the way to harvest, not cut, asparagus. The gauge is inserted perpendicularly alongside the asparagus and when it reaches solid ground a sharp nick will pull the stick of asparagus out of its crown. Harvesting should be done in the early morning while the stems are still turgid. Save evaporation as much as possible.

My final words are upon the forcing of asparagus. In France hot-water pipes are brought to permanent beds. In England, formerly, three-year-old roots used to be brought to beds heated by hot-water pipes and then thrown away after forcing. This method is now too expensive. Asparagus can be forced economically and without wastage of crowns in private gardens, by the following method. A flow pipe can be laid on the surface of the ground, outside a greenhouse, between two beds of asparagus, planted parallel to the house. The water can return through the house, at the further end into a return pipe. These two beds may be covered with lights and early asparagus can be cut. The beds must only have a six-week cut and then be left for rejuvenation, exactly as the natural beds, with no protection. It means that the season of those two beds is early, year by year, and the crop has its normal time of growth and crown formation. A sound valve must control the pipe both ends. The air in the beds must not be dry—water put on the pipes twice a day will provide condensation and a cover of straw by night on the glass will conserve the heat.

Asparagus should be eaten the same day to get the full flavour and potency as a diuretic. Cook the vegetable by standing tied bundles on the butt ends in water and boil till the white part is tender and the green will cook in the steam, with the lid of the saucepan ajar. The whole stick is then edible. If the bundle is too small to stand upright, a clean cloth can hold it up in the water.

These remarks are just a few of the things that may be said of asparagus.

THE HERBERT WHITLEY PLANT COLLECTION AT PRIMLEY, PAIGNTON

James Platt, F.L.S.

THE late HERBERT WHITLEY amassed his collection of plants and animals at Primley, about a mile from the sea to the south-west of Paignton. His personal greenhouses were attached to Primley House, while his zoological collection was established in converted fields and paddocks to the south of the house. Here in his zoo he planted a large collection of trees and shrubs, but, as he maintained, Torbay which is open to the east, is one of the colder regions of the British Isles, he refused to risk outside many plants which survive normal Devonshire winters in the open. He did, however, make generous plantings of such border-line shrubs as *Azara dentata* and *Grevillea thyrsoides*, which are not generally hardy, and he could not refuse to plant *Cordyline australis* outside, for Torbay was already full of it. On the other hand, deciduous *Ceanothus* hybrids, the lovely white form of *Crinum moorei* and *Cassia corymbosa*, which flourish in the mild Torbay air, were confined to the big so-called Palm House, which, in fact, contained only one palm, a *Rhapis* sp. which must be one of the more lowly palms in existence. In consequence, his cold-houses at Primley House contained many plants which could have been safely planted outside.

While most catholic in his choice of plants, there is no doubt WHITLEY's chief love was for blue flowers or fruit, foliage plants and variegations. However, all the tropical and warm temperate zone genera were well represented. Amongst his succulents were remarkable collections of haworthias and aloes which flowered for him regularly. In fact, he cultivated plants from every region and climate, at the same time breeding and selecting. He had an eye for a plant and perhaps luck, for his forms were generally better than other persons'.

Of conventional flower garden, WHITLEY had none. Old photographs show orderly ranks of bedding plants along the terraces, the walls of which screened some of the greenhouses. These eventually gave way to plants such as *Feijoa sellowiana variegata*, *Lardizibala biternata*, *Fabiana imbricata*, the attractive blue *Galega orientalis*, forms of

Tradescantia virginiana, *Iris pallida dalmatica* and its variegations, variegated ivies, Japanese maples in tubs, and a huge veteran clump of *Osmunda regalis* in the hottest, driest corner imaginable. In the shade was a collection of unusual forms of the common polypody; the little-known *Clematis* × *durandii*, half-herbaceous plant, half-climber was also there. In an odd corner there stood a collection of pot plants, ranging from *Pseudopanax ferox* and *Metasequoia* to a minute-leafed variegation of *Aubrieta*. He also placed here several artificial bogs and a little stream for plants such as the variegations of sweet rush and common reed, lady's garters, a beautiful green- and white-leafed iris near to *I. kaempferi*, and *Hosta* seedlings of his own raising.

It was, however, to his houses, some sixteen in number, WHITLEY invariably took his visitors first. Some of them were originally fruit- and melon-houses appropriated for stove plants, ferns and orchids. They were connected almost to his study door by a glass passage, known as the Fish Passage. And here it should be stated WHITLEY combined zoology with botany. This passage contained little compartments and tanks for fishes and amphibians, amongst the inhabitants of which were common toads, of which WHITLEY was breeding a tortoiseshell strain, and yellow-and-black salamanders which he was trying to breed wholely black. In amongst the hot pipes of the old Melon House lived a skink (a small lizard) which, if disturbed, hissed as impressively as any dragon in Wagnerian opera and with the added advantage of being able to put out a tongue which was blue. There were giant toads in the Orchid House, neighbours to superlatively healthy specimens of the brown velvet and cream Garden Tree Boa and the vivid Emerald Tree Boa both of which are excessively difficult to keep in captivity.

The Fish Passage was an admirable introduction to the collection, for the plants growing there were a curious assortment; *Puya alpestris* and *Agave franzosinii* from dry regions, with tiny black-leafed seedlings of Pelargonium 'Black Vesuvius'; *Eranthemum pulchellum*, a handsome blue relative of the *Acanthus*, *Ruellia portelae* with its charming mass of pink flowers, both capable of withstanding stove conditions; *Clerodendron ugandense* almost from the Equator, and the fragile tiny variegated form of *Sibthorpia europaea*, a British native; while in the tanks *Limnocharis humboldtii*, looking deceptively like a dwarf yellow poppy, floated on the surface of the water, also a dwarf water lily as blue as its large tropical relatives, and the blue-flowered *Bacopa monnieri*, an uncommon but typical little water weed. Already the walls and brickwork were covered with the miniature limpet-like climbing fig, *Ficus stipulata minima*, and self-sown maiden-hair fern, both of which in succeeding houses were used by WHITLEY to form a contrast and background, and in the case of the fig, a home for many epiphytes.

It would not be out of place to mention here WHITLEY's methods of cultivation. He was a great believer in coal-ashes. Staging with brick walls was filled with one-third to a half of drainage material and the rest with ashes in which plants were planted. When plants were to be

grown in pots, wooden cases or tubs, there was at least one-third or even more of crocks topped by a mixture of local soil and a very high percentage of sand. Very frequently the wood of the cases or tubs disintegrated with age and the plants then rooted into the ashes of the staging. From this it can only be inferred that WHITLEY believed atmosphere, that is copious watering, ample heat and shade, was all-important. It must be admitted where stove, tropical, warm temperate zone and most bulbous plants were concerned the method was a great success. *Anoectochilus regalis*, an exacting creeping terrestrial orchid with bronze-red leaves covered with a filigree of gold, was utterly happy in the ashes. Where shrubs of a hardy or half-hardy nature were concerned, the results were not so happy, though it must be admitted there were exceptions. No other conditions could have improved on WHITLEY's *Daphne genkwa*, a yard wide, nor on his *Salvia blepharophylla*.

It is only possible to describe here in some detail one of his houses. Its ample proportions offered WHITLEY scope to reproduce the more open portions of a tropical jungle, not so much a jungle of fact but rather of imagination. The luxuriance of the foliage plants grown here, in every shade of green, often with silver or gold markings or with purple underleaf, enlivened by other leaves of pink or sunset-red with here and there the white flower of a *Cypripedium* or the red of an *Anthurium*, recalls the paintings of DOUANIER ROUSSEAU or of an Indian miniature painting. Many aroids were used, such as *Alocasias*, *Xanthosoma lindenii*, *Dieffenbachias*, as well as *Miconia magnifica*, *Tococa* sp., *Hoffmannia ghiesbreghtii* and *Sanchezia nobilis* for stature and substance. *Alpinia sanderae*, *Calathea zebrina* and *Dracaena goldiana* of more rigid growth gave lighter effects. Colour was obtained from seedlings of *Caladium bicolor* raised by WHITLEY, *Dracaena deremensis* forms, and the uncommon *Alocasia cuprea*. Amongst a quantity of plants of lower stature were varieties of *Begonia* including *B. rajah*, *cathayana* and 'Iron Cross'. White was provided by the exquisite flowers of the *bellatulum* group of *Cypripedium*. *Microstylis scottii*, a dwarf terrestrial orchid with attractive fawn and brown leaves as well as *Anoectochilus regalis* were placed in the very front. It is not possible to enumerate all the plants in this house, the profusion of which was such the visitor came across fresh plants on almost every visit. Two must, however, be mentioned individually. First, there was *Tapeinochilus ananassae*, of which WHITLEY was justifiably proud. This little-known member of the *Zingiberaceae* comes from the Moluccas, and WHITLEY's plant was at one time the only one known in cultivation. The inflorescence, much like a pineapple of scarlet wax, but without the leafy crown, is borne on bamboo-like stems. The foliage growths are also bamboo-like until, when some 3–4 feet high, they produce horizontal curved branchlets which carry the leaves (Fig. 71). It is altogether a plant of character, architectural in effect, and requiring greater space than WHITLEY could allow it. The second plant is *Cochliostema jacobianum*, decidedly a puzzle-plant, a

form of plant in which WHITLEY delighted, for it has little resemblance to its near relatives the tradescantias of herbaceous borders and the "Wandering Jew" of conservatories. Its large leaves with a narrow purple margin are as much as 3 feet long and form a rosette. The plant, unless in flower, looks as if it were just another member of the pineapple family, having the same stiff, metallic appearance. The flowers, when they appear, are blue and sweet-scented in cymes from the leaf axils. It is also worth mentioning *Mucuna bennetii*, climbing over one of the doors, for it has flowers like a blood-red *Wisteria*. The writer must, however, admit he has never seen it in flower.

There has so far been little mention of orchids. WHITLEY did not care for hybrids and limited himself to certain species. Perhaps the most spectacular was *Vanda coerulea* emerging from the green of a *Ficus*-clad wall. *Peristeria elata*, the dove orchid, flowered regularly each year for him, even after it had been reboxed for him, after a lapse of some twenty years, by an expert orchid grower, an event which produced great foreboding in WHITLEY for he hated any disturbance of an established plant. Two cypripediums, *C. glanduliferum* and *philippinense*, were curiously attractive in flower for they have long twisted petals rather like the drooping moustache of a Mongol. *Sobralia macrantha* made a fine clump for WHITLEY and unless showing its large *Cattleya*-like flower was frequently taken for a tropical reed.

WHITLEY devoted two houses to succulents and kindred genera. One was noteworthy for its fine old specimens of agaves and aloes. If it were necessary to select one aloe only, perhaps *A. greenii* was the most attractive in foliage with its bright green leaves blotched with paler green in broad bands and with pale brown teeth. The other was dominated by its wide central staging in the centre of which the frosted silver rosette of an *Hechtia* sp., and the spiny angled stem and branches, rigid as if suddenly petrified, of an arborescent *Euphorbia*, a species near *E. alcicornis*, in turn dominated innumerable pans of haworthias. If *H. truncata*, a "window plant", which in its native South African habitat buries itself in the desert soil so that only the translucent tips of the leaves are exposed, was the rarest member of the genus there, many other species, and seedlings raised by WHITLEY, surpassed it in attraction with their rosettes of blue, vivid green, russet or dark brown leaves. On shelves along the walls were the more curious of the Cactaceae: *Ariocarpus*, *Astrophytum* and *Mammillaria*. Near them were pans of euphorbias absurdly unlike the native British spurge; *E. aggregata* forming a dense, spiny, cushion-like mass; *E. globosa* with its top-shaped main stem from which protrude globose branches; *E. meloformis*, an eight-angled green globe. In a corner WHITLEY had collected the bluest of the glaucous-leafed succulents, the most beautiful being perhaps the turquoise blue *Echeveria heerii*. For comparison a pan of rooted cuttings of *Cupressus cashmeriana* was kept near this collection and was quite as blue as *Echeveria glauca*.

It is only right to mention the variegations WHITLEY loved so much.

Many tropical plants have normally striped or marked leaves, so it is perhaps amongst hardy and half-hardy plants variegations are most noticeable. He had several plantings of the impressive *Arundo donax variegata*. In contrast to its size was a prostrate bramble with clearly-marked green-and-white leaves and red blackberries. There was a *Crocus* sp. with variegated leaves. Amongst a great variety of *Agapanthus* were two variegations, one a robust free-flowering plant with golden striped leaves, the other more of a weakling but with pretty silver variegation and refusing to flower. Two uncommon variegations were those of *Serissa foetida* and an unidentified shrub which may be *Sycopsis sinensis*. Before leaving such plants the variegated form of *Acanthopanax pentaphyllus* must be mentioned, for it is a decorative hardy shrub, too little known.

It is worth recording some of WHITLEY's more attractive plants and plant associations: *Selaginella sellowiana uncinata* with brilliant metallic-blue foliage in the shade of *Ficus indica variegata*; the mottled green, red and white rosettes of *Cryptanthus beuckeri* lying on a brick ledge; *Ficus diversifolia* like a dwarf Japanese tree covered with miniature figs; the cool lavender-blue of *Griffinia hyacinthina*, one of the rarest of Amaryllids; *Begonia imperialis* var. *smaragdina* with leaves of a particularly brilliant fresh green, opposite the dark green and white of *Polyscias guilfoylei*, entwined with *Cissus discolor* var. *mollis* whose velvety green leaves are silver mottled above, purple beneath; the rose-pink flowers of *Dipladenia amabilis* of the *Apocynaceae*, similar in shape to those of soft yellow of *Allamanda cathartica*, the latter struck from a piece of vegetation used as packing material in a consignment of snakes; the immense violet flowers of a *Brunfelsia calycina*, near *Gynura discolor*, whose leaves are covered with down of a brighter violet which contrasts with the orange flowers; *Odontonema schomburgkianum* whose pendulous racemes of red flowers like long Victorian earrings almost belie that it is a Gesnerid; the lace-like fronds of tropical Davallias contrasting with the leathery fronds of *Oleandra africana* and *Aglaomorpha meyenianum* which in turn contrast with the glaucous hue of *Polypodium mandianum*; *Neomarica caerulea* with tall sword-shaped leaves and blue flowers barred brown and orange, almost as if a *Tigridia* had been crossed with a *Moraea*; the evergreen *Ardisia crispa* always in flower and in consequence always carrying a generous crop of bright red berries; the luminous red of many clumps of *Vallota purpurea*; the sea of blue and white formed by innumerable *Agapanthus* species and hybrids growing in cases on a cold greenhouse floor; the uncommon hybrid *Crinum*, 'Mrs. Bosanquet', flaunting her rich purple flowers from the floor of a cold house; the beauty of the rosy-purple leaves of *Bertolonia* × *houtteana*; the white and red-striped flowers of an *Hippeastrum*, possibly *H. vittatum*, showing through the scarlet, pink and bright magenta of WHITLEY's geranium seedlings.

WHITLEY in time became a myth, of unapproachability, of caustic language, of dispute, but such was far from being the truth. He loved

controversy and the more eminent his opponent the more he was delighted. He did not suffer the idle curious, but welcomed most warmly anyone, though a woman was invariably viewed with suspicion until she had proved her knowledge, with the slightest knowledge of or interest in any branch of botany and zoology. He could not have been more generous in his distribution of plants, nor more charming to his friends. Shortly before his death he formed an educational trust leaving the Trust his collection of plants and animals. Unaware of the serious nature of the illness from which he was suffering, he was unable to watch the Trust develop as he had wished, nor endow it satisfactorily. The Trust has, as a result, been obliged to close down WHITLEY's personal greenhouses and transfer their contents to the Tropical and Palm Houses of the Zoo, now a Company, or to the houses of the Primley Botanic Nurseries which WHITLEY himself founded for the distribution of the plants which pleased him so much, and which continues to do so in his absence.

A TRANSVAAL GARDEN

Eve Palmer

HORTICULTURE, both in South Africa and abroad, is indebted to the handful of gardeners and nurserymen who have collected, grown, and distributed South African wild flowers, some of them almost extinct and most of them difficult to obtain in their native land.

The late MISS K. C. STANFORD was internationally known for her garden and nursery of wild flowers in the Cape, from where she distributed widely her seeds and bulbs. Towards the end of her life she collaborated with a collector, botanist, and gardener in the Northern Transvaal, MISS SHEILA THOMPSON, whose farm in the Woodbush Mountains was directly complementary to MISS STANFORD's nursery in the south.

Here, in a region of mists and summers of heavy and often torrential rain, she grows a wide and fascinating selection of the wild flowers of the summer rainfall area—by far the largest area of South Africa; and at the same time the better-known flowers from the winter rainfall region of the Cape. She grows the latter in great quantities for the wholesale trade—mainly ixias, babianas and sparaxis—and gardeners are indebted to her for this alone, for, fantastically, South African "bulbs" are not as easy to obtain as the imported.

Probably, however, MISS THOMPSON's greatest gift to gardening will prove to be the flowers from the summer rainfall areas, little known horticulturally and yet often of the greatest garden merit, which she has collected from all parts of Southern Africa and grown on her farm.

Many of these plants have not yet been described botanically, the

small fragrant Eucomis, for example, brought back from the Blaauwberg, an almost unexplored mountain of the extreme northern Transvaal. All the species of the genus *Eucomis* are, aptly enough, called pineapple lilies, with their thick flower spikes topped with tufts of bracts. Not all are beautiful, but this is a pretty little species with white flowers on a graceful stem, not more than 12 to 18 inches high, and fragrant—an unusual characteristic in this genus. This was a good garden find in all ways, for the bulbs increased enormously and from the original four, MISS THOMPSON has built up a stock of thousands. An accommodating plant, it now grows in sunbaked gardens to the south very far removed from its forest home where it grows together with the red paintbrush flower, *Haemanthus magnificus*, in their tens of thousands.

From the Chimanimani Mountains of Southern Rhodesia come an unnamed species of gladiolus with a small pink flower, an unnamed dark red *impatiens*, a dierama with medium pink, wide open flowers, an *Osbeckia*, like a pinky-mauve *Lasiandra* and particularly beautiful against the grey rock of its home. These, and many other plants, MISS THOMPSON gathered in torrential rain, packed into a grass wash-basket, and carried down the mountain on her head (together with a plant press, papers, and buck sail!).

A medium-sized gladiolus with clear pink blooms, grown from seed collected on Mount Anderson, remains undescribed. It won an award at a recent Transvaal Horticultural Society Show and was very greatly admired.

The watsonia collection is one very dear to MISS THOMPSON herself. Unique by any standards, it is of particular interest for the promise it gives of a new "flower fashion" of the future. Why have these enchanting flowers been neglected, many visitors ask, when gladioli to which they are closely allied, have been the hybridist's joy for years? They are a most graceful and rewarding race with a colour range from the purest, glistening white of *Watsonia ardernei*, through pinks and mauves, to ruby, apricot, and scarlet; and they have proved themselves tough and easily propagated.

The spring-flowering species come largely from the Cape, *W. ardernei* flowering early followed by *W. aletroides*, *W. meriana*, *W. versfeldii*, *W. pyramidata*, *W. marginata*, the miniature *W. humilis* and the tall *W. fourcadei*. In late spring comes an outstanding species, *W. stanfordiae*, ruby red and free-flowering, found originally in the Franschhoek mountains by a native boy employed by MISS STANFORD; and flowering at the same time is 'Stanford's Scarlet', one of MISS STANFORD's own seedlings and one of the best of the scarlet watsonias.

Summer- and autumn-flowering watsonias are mainly from the summer-rainfall areas: *W. alpina*, a delicious soft pink striped in deeper shades; *W. densiflora* in its various colour forms, white, pink, ruby red, and reddish purple, its double-sided spikes and richly coloured bracts making it a most distinctive species; *W. wilmsii*, with short, brilliant pink flower spikes; red *W. socium*, pink *W. lepida*, orange *W. pillansii*;

W. flavida in its pale yellow and dark red forms. The very beautiful and well-known scarlet *W. galpinii* is from the Cape.

W. transvaalensis paints hillsides in the Woodbush an orchid pink from early to late autumn. It is a charming and little-known species which was first introduced to horticulture by MISS THOMPSON. Its two other colour forms, a pale pink and pure white, were first discovered by her in the mountains near her home, and have been increased from a few bulbs. These have been christened 'Pink Pearl' and 'White Mist', and the latter in particular is very lovely with its ethereal snowy bells and graceful line. All three forms, hardy and excellent as cut flowers, should be popular in countries with cold winters, for they are then dormant and do not suffer from frost damage as do some of the spring-flowering species such as the lovely bell-flowered *W. marginata*.

Until recently very little hybridizing of watsonias was done in South Africa, far more work on this purely South African genus having been done in Australia. MISS THOMPSON, however, has raised some outstanding hybrids during the past few years and one, white flushed mauve (*W. versfeldii* × *pyramidata*) was given an award at the Transvaal Horticultural Society Show in 1955. *W. beatricis*, the very good apricot species with its long spike of wide open flowers, has proved a good seed parent, as has *W. pyramidata*. Seedlings of the salmon-coloured *W. fourcadei* have grown nearly 8 feet high and are a rich tomato colour.

The most unusual hybrids are progeny of the orchid pink *W. knysnana*; 'Santa Rosa', with flowers the colour of a ripe plum covered in bloom; and a group with richly coloured, cinnamon brown flowers, all as yet unnamed.

A natural hybrid from the south coast of Natal gained a Transvaal Horticultural Society Award of Merit and a first prize in 1952. This has been named 'Old Rose' and is a deep, pure rose colour, and particularly beautiful in bud, when the flower spike has the appearance of a plaited thong. It blooms for many months in the year, showing the best characteristics of its parents (probably *W. pillansii* and pink *W. densiflora*). This, too, was first introduced to gardeners by MISS THOMPSON.

Dieramas are seldom found in South African gardens, probably because they are difficult to obtain; but it is easy to believe that, like watsonias, they may be flowers of the future. With their tall, gracefully bending flower spikes that quiver in the lightest breeze, their delicate flowers in pink and mauve, violet and ruby, they are some of the most lovely of all veld flowers.

MISS THOMPSON has some dozen species, all of them with some garden merit, and some outstanding, such as the tall *Dierama atrum* from Ixopo with dark ruby-red flowers and silver bracts, or a still undescribed species from Stutterheim with large flowers of clear violet. *D. galpinii* has a unique habit of growth, for the red flower buds appear before the leaves, which are no more than 6 inches high when

the flowers open. The stalks bearing the seed-heads later elongate to some 3 feet and are very decorative. *D. pendulum*, with its arching slender stalks and gentle pink and mauve flowers is a waterside plant of distinction.

Among the half dozen species of agapanthus is *Agapanthus caulescens*, a lovely species with wide-open deep blue flowers. This is of particular interest for although specimens have been preserved and grown in Europe, it has not been found in South Africa since it was first collected many years ago, and it was doubted if it really came from the Transvaal as described. It was, however, recollected in the Waterberg a short time ago and is something of a botanical rarity.

Moraeas, closely related to the iris, are good garden subjects yet all too seldom seen in South African gardens. MISS THOMPSON has several good species, *Moraea moggii*, a local species, with clear lime-green flowers which looks charming growing wild on the mountains; *M. spathulata* from Swaziland, a tall species with good yellow flowers, and a dark mauve unnamed species from Nyasaland, grown from seed collected by her mother on the Nyika plateau. These are the flowers of COLONEL LAURENS VAN DER POST'S *Venture to the Interior*—"the proud erect flowers of chivalry—the dark purple tide ebbing through the gold of the grass".

An interesting species is *M. polystachya*, a species from the Karroo, where it covers great stretches of the grey veld in shimmering blue.

There is a good collection of the wild gladioli, but the star has not yet flowered. This is a single bulb of *Gladiolus basutocus* which grows on inaccessible rock faces on the Drakensberg, between 9,000 and 10,000 feet above sea-level. It is a glorious rich crimson, and for obvious reasons is known as the "suicide lily". Until recently, it has evaded cultivation, and the solitary bulb which MISS THOMPSON hazardously collected has never set seed or increased.

G. saundersii is one of the finest indigenous species, with tremendous scarlet and white flowers. It comes from the Natal and Basutoland mountains and is very hardy. Many visitors find it difficult to believe that this is a wild species and not some gorgeous hybrid. *G. cardinalis* is a Cape species now almost extinct in the wild state and difficult to buy; but it thrives in the mists and rain of the Woodbush, as well, or better than, in its true home. It is one of the loveliest flowers imaginable with clear rosy-crimson blooms with white and deeper crimson markings.

Other gladioli are *G. leichtlinii*, *G. milleri*, *G. papilio*, *G. primulinus*, *G. psittacinus* var. *cooperi*, and several not yet named; and the Cape species, *G. alatus*, *G. blandus*, and *G. tristis*. *G. blandus* var. *erubescens* is a lovely garden "species" with large pink flowers and thick blue-grey foliage. Its origin is unknown and it may prove a hybrid.

Some fine garden flowers belong to the genus *Tritonia*, in particular *T. masonorum* (*Crocosmia masonorum*), with red-gold blooms on a graceful stem—a rare and expensive plant. *T. crocata* is the common orange species, but *T. hyalina* and *T. squalida* are more uncommon, the

former a good salmon pink, and the latter cream and strawberry pink. *T. securigera* is yellow or orange.

Sparaxis, babianas, and ixias, all from the Cape Province, grow in quantities. The rare green ixia, *Ixia viridiflora*, is particularly lovely with its dramatic blue-green flowers. It is seldom seen in South Africa but always greatly admired. An unusual ixia, described, as *I. polystachya* var., but probably a hybrid—originally it was found in a garden in the northern Transvaal—is now one of the most popular in MISS THOMPSON'S nursery. The large yellow blooms turn pink with age so that soft pink and yellow are blended together and look exquisite both in the garden and in the house. This is a good cut flower.

Other plants such as homerias and hesperanthas, ornithogalums, freesias and cyrtanthus, gloriosas and nerines do extremely well. Nerines are becoming popular garden plants and MISS THOMPSON has many species, *Nerine filifolia* and *N. filamentosa*, reliable plants with pink frilled heads; *N. masonorum*, a miniature; *N. krigei* with twisted leaves and large flower-heads; *N. angustifolia*, a tall large-flowered species; *N. bowdenii*, the loveliest of all, but an exceedingly erratic bloomer in South Africa.

Schizostylis, the Kaffir lilies, in pale pink, crushed strawberry, tomato and dark crimson, ramp. Streptocarpus grow wild about her home and she has eleven cultivated species, white *Streptocarpus parviflorus*; *S. polackii* with huge blue flowers; *S. cyaneus*, a pale blue; cream *S. vandeleurii*, the only scented species; a small purple form of *S. galpinii*; and the stupendous *S. grandis* from Zululand, with 3-foot-long leaves and huge heads of blue flowers, two hundred or more flowers to one head. The culture of these exotic flowers is simplicity itself—MISS THOMPSON simply rubs the ripe seed pods over the damp rocks and a huge crop springs up.

Arum lilies are indigenous to the neighbourhood, and MISS THOMPSON has the lemon-coloured *Zantedeschia melanoleuca* and its magnificent variety, which is known as 'Helen O'Connor', turning with age from lemon to deep shades of apricot. *Z. pentlandii* is a vigorous pure rich yellow, and *Z. rehmanni* charming in its colour forms from white and cream through varying tones of pink and burgundy.

MISS THOMPSON, like many collectors, is more interested in plants than in garden layout. Nevertheless, in the spring her 4½ acre farm is an astonishing sight, with 'Mermaid' and 'Macartney' roses ramping wild, banks of Siberian iris, and *Iris kaempferi* near the vlei, ornamental cherries, apples, and peaches blooming magnificently; the local *Greyia radlkoferi*, with its brilliant red brushes of bloom, mauve-pink *Podalyria calyptrata* from the Cape, and the lovely spring-blooming shrub, *Virgilia divaricata*, from the south. The Cape daisies close-carpet every spare inch of soil—they sow themselves luxuriantly—venidiums, ursinias, dimorphothecas, gazanias, senecios, cotulas, felicias, charieis, arctotis. The Buck Bay vygie, *Dorotheanthus bellidiformis* grows in thousands in its wonderful colour forms; and heliophila, like the bluest

of blue flax, is everywhere. Rosy-pink diascias, mingling with a clear violet form of the low-growing *Geranium incanum*, burst with colour, and the hybrid dimorphotheca, 'Bloem Erf Beauty', makes great hummocks of lilac. Behind and between this semi-wild garden are the brilliant ranks and terraces of bulbs.

In the autumn the hillsides are yellow with the native St. John's wort, *Hypericum leucoptychodes*, with its curry smell; and rich with the mauve and pink and raspberry of plectranthus, watsonias, nerines, and many more.

At all seasons this is a venture that attracts a continuous trickle of botanists and garden lovers, and draws correspondence from all parts of the world. It may prove one of South Africa's great contributions to international horticulture.

THE CONSERVATORIES AND CLIMBING PLANTS AT WYE COLLEGE

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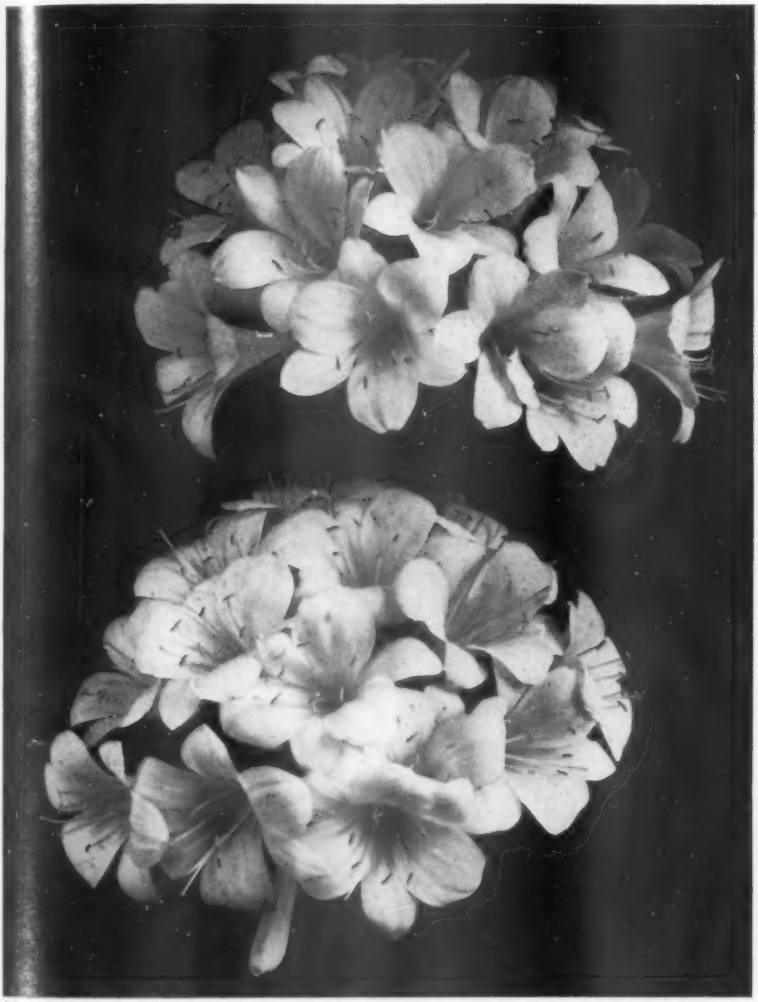
THE University of London has a wide syllabus in decorative horticulture, ranging from the design and layout of gardens, to the detailed culture of flowering and foliage plants in the open and under glass. The achievement of a satisfactory level of teaching in these subjects, depends to a large extent on the facilities available and the selection of plants for demonstration. The gardens and conservatories of Wye College have now been under the same direction and management for about ten years, and it is therefore appropriate to review and comment on aspects likely to be of interest both to teachers and gardeners.

The formal teaching of horticultural practice occupies only half the total time available for the complete course at Wye College, of which teaching of decorative gardening occupies rather less than one-third of this total. As this branch of horticulture covers so many aspects, the student must draw upon his own reserve of time, to supplement what he learns in formal classes. If he is to do this effectively the plants must be well selected and sited and, of course, fully, clearly and accurately labelled.

The part played by the ornamental section and the collection of plants it contains is most important, not only because they can be used all the year round but because of the comparatively extensive range of representative genera and species that can be shown. These are derived from widely different sources, and include decorative types as well as examples of economic plants.



Photo, J. E. Downward

FIG. 67—*Clivia* 'Bodnant Yellow' **F.C.C.** April 15, 1958. A very fine variety with pale yellow flowers, shown by LORD ABERCONWAY (see p. 264)

Photo, J. E. Downward

FIG. 68—*Helleborus niger* 'Potter's Wheel' **A.M.** February 18, 1958. A fine form of the Christmas Rose. Shown by MISS H. DAVENPORT JONES (see p. 264)

Photo, J. E. Bottomley

FIG. 68—*Helleborus niger* 'Potter's Wheel' **A.M.** February 18, 1958. A fine form of the Christmas Rose. Shown by MISS H. DAVENPORT JONES (see p. 264)

Photo, Ronald Sleep, F.R.P.S.

FIG. 69—A collection of aeroids and other tropical plants in the greenhouse of the Herbert Whitley Collection at Primley, showing fine variegated and coloured foliage

Photo, Ronald Sleep, F.R.P.S.

FIG. 70—Part of the greenhouse simulating a tropical forest in the Herbert Whitley Collection at Paignton Zoo

Photo, R. Navarro

FIG. 71—*Tapeinochilus ananassae*. An unusual member of the *Zingiberaceae* in the same collection (see p. 242)

Photo, Ronald Sleep, F.R.P.S.

FIG. 72—The collection of haworthias and other succulent plants in the Herbert Whitley Collection

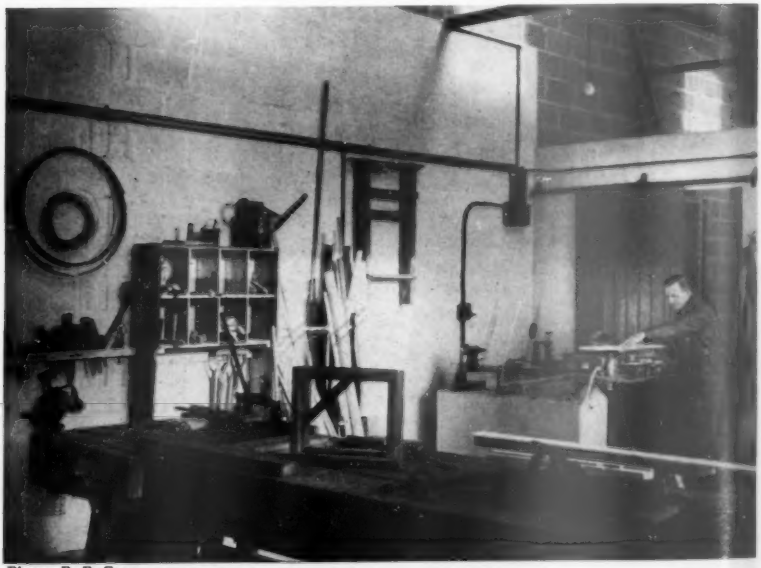
Photo: Dr. N. R. Smuts

A TRANSVAAL GARDEN

FIG. 73—*Ornithogalum saundersiae*. The tall, summer-flowering chincherinchee

THE NEW BUILDINGS AT WISLEY

FIG. 74—The garage and implement shed (see pp. 232–4)



Photos, R. P. Scase

FIG. 75—The carpenters' shop (see pp. 232–4)

FIG. 76—*Ardisia crenulata* (see p. 254)

Photo, J. E. Downward

FIG. 77—*Leucanthemum hosmariense* **A.M.** April 1, 1958. Shown by DR. J. G. ELLIOTT (see p. 264)

FIG. 78—*Pentapterygium serpens* in the conservatory at Wye College (see p. 252)

Photo, Dr. N. R. Smuts

FIG. 79—A violet-and-white-flowered species of *Eucomis* collected in the Natal Drakensberg

A TRANSVAAL GARDEN

THE GREENHOUSES

The greenhouses at Wye were built in 1946–7 as part of a general glasshouse block. They had therefore to conform in structure and length (100 feet) to the adjacent commercial glasshouses. Two houses 20 feet wide, were allocated to meet the needs of decorative teaching, having a common wall, with a communicating door and were modified to give five sections. The sections have a common heating system independent of the adjoining commercial range. The most exposed greenhouse, on the north-easterly end of the block, has two sections used as cool-houses, with a minimum winter night temperature of 45° F. The southerly section (1), which has a central potting bench, is used for student practical work. The northerly section (2) houses representative plants from temperate and sub-tropical regions, many of which could not be grown safely in the open at Wye.

The inside greenhouse is entered from Section 1. It has three sections, a conservatory proper, with a minimum night temperature of 50° F., an intermediate section kept at 55° F. minimum temperature, and a cool stove section with a minimum temperature of 60° F.

In the stove-house the floor is of ash and in every section the space under the benches is covered with plants such as *Fittonia argyroneura*, *F. verschaffeltii*, *Zebrina pendula* and *Tradescantia fluminensis*, all of which helps to maintain a high relative humidity. Pest and disease control is done by means of aerovap units installed in all but No. 1 section, where practical operations are carried out.

The Cool House. Sections 1 and 2 contain a selection of climbing plants some of which have been planted out in various parts of the College to test their ability to survive the winter. These sections also accommodate the primulas used in teaching the elements of plant breeding, and a good seasonal range of flowering plants including gloxinias, cinerarias and cyclamen.

The Intermediate House contains *Begonia* and *Columnea* species and a representative collection of temperate orchids.

The Stove House contains many tropical plants grown for their foliage, and nowadays popular as house plants. Sub-tropical orchids and ferns are also included.

A few plants of *Derris elliptica*, *Oryza sativa* (rice), and *Apios tuberosa* (groundnut), are grown as examples of crop plants important in the tropics.

The Conservatory

The main function of this section is to display representative species as they come into flower. When the flowering season is over they are returned to the section that suits their special requirements. It is also used to stage pot-plants and foliage plants, which include several species of *Begonia*, *Coleus blumei* hybrids and *Pilea cadieri*.

FIG. 78—*Pentapterygium serpens* in the conservatory at Wye College (see p. 253)

FIG. 79—A violet-and-white-flowered species of *Encomis* collected in the Natal Drakensberg

A TRANSVAAL GARDEN

CLIMBING PLANTS

From the beginning the climbing plants have grown exceptionally well and have been regarded as one of the most interesting features of the Wye Collection of greenhouse plants. Examples occur in each section, according to the temperature, humidity, and shade requirements of the species. The majority are grown in large pots on the staging, trained on wires placed at a distance of 1 foot from the glass.

Abutilon megapotamicum, a native of Brazil, grows well under cool-house conditions. Its long, whippy shoots are easily trained and the red-and-yellow flowers, with a mass of crimson stamens, make it an attractive plant. It flowers most of the summer. It has been tried outside in a well-drained border against a south-facing wall, where it survived for several years, until the severe winter of 1955–56.

Also in the cool house (Sections 1 and 2) is *Cantua buxifolia*. Its tubular pink flowers striped with orange present a curious mixture of colours. It is not a combination which I find particularly attractive.

A good choice for an early spring-flowering shrub, here grown as a climber, is *Cassia corymbosa* with lovely golden yellow flowers. They are cup-shaped and hang down in large clusters. It may be propagated by seed or cuttings. As with several greenhouse climbers replacement by young plants is necessary every five years or so, when an old plant has outgrown the space available in a house of limited height such as this.

The Parrot's Bill from New Zealand, belonging to the family Leguminosae, is an appropriate name for *Clianthus puniceus*, which bears large scarlet flowers. It has been reported to survive outside in the south and south-west of England. We tried it outside at Wye just before the winter of 1955–56, but unfortunately the plant was killed. A climber which is best treated as an annual is *Cobaea scandens*. Its cup-shaped mauve flowers are produced the whole summer through and by the autumn it has covered an area of 12 feet or more in length. It may, of course, be treated as a tender annual outside.

Three *Jasminum* species are also grown and flower well. The white *J. azoricum* does not flower as profusely as *J. polyanthum*, which fills the house with its delicious scent for five to six weeks in the spring. The clusters of white flowers tinged with pink are very lovely. *J. primulinum* we have also grown outside for several years on a south-west facing wall, where it flowers well each spring. It is interesting to note that it is unknown in the wild and that the double yellow flowers have never been known to set seed. It is presumably a sterile hybrid of garden origin.

Although *Mandevilla suaveolens* is described by one authority as a stove-house plant, at Wye it grows well in the cool house. It is reminiscent of a large stephanotis with four waxy-white flowers in a cluster. The seed pods, borne in pairs 9 inches to a foot long, are joined at tip and base, but are free in the centre.

Another interesting plant is *Pentapterygium serpens* (Fig. 78), an epiphytic shrub from Western China. At ground level it produces an

enormous swollen root base, which presumably has water-absorbing or retaining properties. It has a very small root system and must be grown in a well-drained acid soil. Our plant produced a mass of trailing shoots in one season and hanging from these appeared the small pinky-red flowers, beautifully shaped and veined.

The powder blue *Plumbago capensis* is a reliable standby and easily grown. The deep pink species, *P. rosea*, is grown in the stove house and makes a lovely pot plant.

Another climber raised from seed each year is *Rhodochiton atro-sanguineum* (syn. *R. volubile*). It is a rapid grower producing its strange purple flowers along the length of its shoots.

Two *Solanum* species, *S. crispum* and *jasminoides*, formerly grown in the cool house are now grown outside and have proved hardy in all but the most severe winters. *S. wendlandii* with large blue flowers, blooms in late summer.

Also of the family Solanaceae is *Streptosolen jamesonii*, which may be grown either as a pot plant or climber. Its terminal panicles of brilliant orange make it one of the best for bold effects.

Although perhaps more strictly classified as a shrub, *Tibouchina semidecandra* can be trained as a climber, and is so striking in flower that it deserves mention. Its deep purple flowers and velvety green leaves make it an attractive plant.

Passing to the intermediate section we have fewer climbers. *Bougainvillea* × *buttiana* flowers well each year as does the evergreen *Clerodendron thomsonae*. This is a magnificent sight when in flower in early summer, a mass of tiny carmine and white flowers, the lovely shape and colour being shown up by the background of dark green leaves.

Although *Petrea volubilis* is often listed as a stove-house plant, it is growing well here. It has quickly reached the roof from where its long racemes of purple flowers hang downwards. It was in flower most of the summer.

In the stove house, the most striking when in flower, is *Allamanda cathartica* var. *schottii*. Its wax-like trumpets of deep yellow are produced for many weeks during the year. It needs pruning to within two nodes of the old wood after flowering, to keep it within bounds.

This brief survey has by no means exhausted the range of climbing plants demonstrated at Wye representing many families and drawn from diverse countries. Some of the species are mentioned in the course of teaching, but few of them are dealt with in detail. For the interested student the collection provides a unique opportunity for studying their systematic position, their botanical characteristics of form and structure, in addition to the practical aspects of their propagation, culture and use in a specialized branch of horticulture.

PLANTS AND PROBLEMS—XLIII

Question. What are these growths which appear on my lawn and spoil the turf?

Answer. The grey crust-like growths which are present in your turf are those of a lichen. These often occur on damp lawns, where the drainage may need improvement, but we think also occur on a well-drained site if the top inch or so of the lawn is inclined to remain sticky and wet after rain. In such a case it would be as well to practise the "spiking" treatment, where a tined fork is thrust into the soil all over the surface, after which good sand is well brushed in. Before this, we would recommend that the lichen be raked out as far as possible and the affected patches treated with a dressing of Mercurized Turf Sand.

NOTE FROM A FELLOW

Ardisia crenulata

THIS ornamental plant will be known only to older gardeners, as for many years it has not been appearing on our markets. As the present tendency is to have a wider variation of potted plants, its cultivation especially in England and Germany, has been taken up again.

Ardisia crenulata belongs to the family of *Myrsinaceae* and has its origin in China. The bright-green, leathery leaves, which are, as far as colour is concerned, very similar to those of the camellia, give an effective background to the dark red berries, the size of peas, which group themselves around the stem of the plant. These berries give the plant a distinguished, elegant appearance and the well-known solanum cannot enter into competition with it. Furthermore, the ardisia with its bright leaves is an impressive foliage-plant (Fig. 76).

In smaller nurseries, the cultivation of ardisia is not profitable, because it needs three years in which to develop, involving, however, little expense. Its cultivation may be compared with that of the azalea yet the selling price is higher. At a Dresden wholesale nursery 15,000 ardisias are cultivated and sold each year.

The sowing is done at the beginning of January. The seed-bed, prepared for sowing in a warm-house, receives a 3-inch layer of "moor" soil mixed with sand in the proportion of 3:1. Directly after having been gathered, the seeds are separated from the pulp and slightly dried. It is best to sow the seeds in drills of 1–1½ inches apart and the seeds sown ½ inch apart. The seeds are covered with their own depth of soil. To assure a better and regular humidity ½ inch of peat is added. If the soil has a temperature of 68–78° F. the seeds will germinate in 7–8 weeks.

As soon as germination starts, the peat is taken away to avoid the growth of damaging fungus. The young plants should be syringed at mid-day.

Transplanting

Twelve to fourteen weeks after sowing, the young plants are ready to be transplanted. The bed and soil is prepared as for sowing. The distance in between the rows is 2½ inches and between the plants 1 inch and the soil temperature should be as before. It is important to syringe each mid-day to prevent the plants from drooping. By the end of July, the plants are ready to be potted in a sandier mixture in 3-inch pots and to be put in a warm-house.

Propagation by cuttings

From the plants raised during the year, at the beginning of December, the leading shoots may be taken as cuttings and rooted in a hot-house in a mixture consisting of equal parts of peat and sand. In a soil temperature of 78° F. these cuttings should be rooted in 4–6 weeks. Afterwards they are potted up into 3-inch pots and remain for some time in the warm-house.

Growing on

In the middle of July, these young plants are planted on table beds. To obtain good drainage, about ¾ inch of pine needles is placed on the table and on this 5–6 inches layer of "moor" soil. The distance in between the plants is 10–12 inches. It is important to provide uniform moisture in the soil and a warm, damp atmosphere in the house. It is best to shade permanently. At the end of September, these plants will need potting in 5–6-inch pots. A coarse, crumbly "moor" soil mixed with sand to which hoof-and-horn and bone-meal have been added is the best soil for these plants. The pots remain in the warm-house where, during the next weeks, the air has to be kept somewhat damp to enable the plants to make new roots.

Naturally, the plants raised from seed from which cuttings were taken in the winter, can be used for growing into plants, but these will never possess the same compact growth as the plants raised from cuttings.

The temperature of the house during winter ought to be between 60 and 65° F. Next spring, at the end of April, the plants will start blooming. To obtain good pollination and fertilization, the distance between the plants is increased and during the day the houses are ventilated. On the whole, the cultivation is the same as during the previous year. The berries, which grow fast after the flowers have faded, will be bright red by November. It is advantageous to give the plants some liquid manure during summer.

Pests and diseases

Phyllostica ardisiae, a fungus which spots the leaves and stems, sometimes appears in the last year of cultivation and renders the

plants, if badly attacked, unsaleable. It is advisable to spray repeatedly with a copper spray to prevent such an attack. As far as pests are concerned, the scale is the most serious; it can, however, be avoided through proper care and timely counter-action.

It is hoped that these few hints will encourage many fellow-gardeners to try growing this plant. Although their cultivation takes some time ardisias are cheap to grow and form very decorative plants for the Christmas season.

Uster, Switzerland. H. WAFFENSCHMIDT

WISLEY TRIALS, 1957

TAGETES (FRENCH AND AFRICAN MARIGOLDS)

Eighty-two stocks of tagetes (French and African marigolds) were received for trial at Wisley during 1957. The dwarf and semi-dwarf stocks were sown, in rows 18 inches apart in the open ground, on May 3, 1957, and the resulting seedlings were thinned to 10 inches apart. The tall stocks were sown, in rows 2½ feet apart in the open ground, on May 14, 1957, and the resulting seedlings were thinned to 1½ feet apart. The plants grew vigorously and most of the varieties were taller than might be expected in a more normal season.

The trial was inspected by a sub-committee of the Floral Committee A on August 9, 19, September 5, 17 and October 7, 1957, and on its recommendation the Council of The Royal Horticultural Society has made the following awards to tagetes.

The number in brackets after the description of the variety was that under which it was grown in the trial.

Varieties of *Tagetes tenuifolia* var. *pumila*

Flowers single

GOLDEN GEM IMPROVED. (Raised, introduced and sent by Messrs. Hurst & Son Ltd., Kelvedon House, 60/64 Artillery Lane, London, E.1.) **A.M.** August 9, 1957. Plant 10 to 12 inches high, compact cushion-like habit; flowers 1⅛ to 1¼ inches diameter, freely produced; petals large, broad, flat, Indian Yellow (H.C.C. 6) with touch of Orange (H.C.C. 12/1) on centre. [5]

Varieties of *Tagetes patula*

Flowers single

FIRE CROSS. (Sent by Messrs. Hurst & Son Ltd.) **A.M.** September 5, 1957. Plant 16 to 18 inches high, erect compact habit; flowers 2 inches diameter, freely produced; petals broad, flat, slightly waved at margins, Saffron Yellow (H.C.C. 7) with a large blotch of crimson mahogany. [9]

GULLEBRAND. (Raised, introduced and sent by Messrs. J. E. Ohlsens Enke, Copenhagen, Denmark.) **A.M.** August 19, 1957. Plant 12 to 14 inches high, erect compact habit; flowers 1¾ inches diameter, very freely produced; outer petals large, slightly waved, Saffron Yellow (H.C.C. 7), inner petals crested, Tangerine Orange (H.C.C. 9). [10]

NAUGHTY MARIETTA. (Raised by Messrs. W. Atlee Burpee Co., introduced and sent by Messrs. Hurst & Son.) **A.M.** August 9, 1957. Plant 18 to 20 inches high, erect compact habit; flowers 2½ to 2¾ inches diameter, freely produced; petals large, broad, flat, Saffron Yellow (H.C.C. 7) with a large blotch of mahogany red extending from base to centre of petal. [8]

NAUGHTY MARIETTA. (Sent by Messrs. Watkins & Simpson Ltd., 26/29 Drury Lane, Covent Garden, London, W.C.2.) **H.C.** August 19, 1957. Plant 20 to 24 inches high, erect compact habit; flowers 2½ to 2¾ inches diameter, freely produced; petals large, broad, flat, Indian Yellow (H.C.C. 6) with large blotches of deep crimson mahogany at base. [7]

Flowers double

CLAUDIA. (Raised, introduced and sent by Messrs. L. Clause S.A., Brétigny-sur-Orge, France.) **A.M.** August 9, 1957. Plant 20 inches high, erect compact habit; flowers 2½ inches diameter, freely produced; petals tightly packed, reflexed, slightly waved, deep crimson mahogany picoteed gold, changing to Indian Yellow (H.C.C. 6) overlaid reddish bronze when fully open. [38]

GOLDEN BEAUTY. (Raised by Messrs. Jo's Reigers Ltd., Zwijndrecht, Holland, introduced and sent by Messrs. Hurst & Son Ltd.) **A.M.** August 19, 1957. Plant 20 to 22 inches high, erect compact bushy habit; flowers 2¼ to 2½ inches diameter, freely produced; single outer row of petals reflexed, Saffron Yellow (H.C.C. 7/1), inner petals tightly packed, quilled, a deeper shade of Saffron Yellow (H.C.C. 7). [21]

RUSTY RED. (Sent by Messrs. Watkins & Simpson Ltd.) **A.M.** August 19, 1957. Plant 22 inches high, erect compact habit; flowers 2⅔ inches diameter, freely produced; petals large, flat, Indian Yellow (H.C.C. 6) heavily overlaid with deep rich mahogany which fades slightly with the age of the bloom. [39]

SERENADE. (Raised, introduced and sent by Messrs. Ferry-Morse Seed Co., Mountain View, California, U.S.A.) **A.M.** August 19, 1957. Plant 12 to 14 inches high, erect compact bushy habit; flowers 2¼ inches diameter, very freely produced; outer petals flat, inner petals quilled, Buttercup Yellow (H.C.C. 5). [17]

SUNKIST. (Raised by Messrs. Bodger Seeds Ltd. and sent by Messrs. Watkins & Simpson Ltd.) **A.M.** August 19, 1957. Plant 12 to 14 inches high, erect compact habit; flowers 1¾ to 2 inches diameter, freely produced; petals broad, slightly waved, a rich orange near Tangerine Orange (H.C.C. 9). [22]

TANGERINE. (Sent by Messrs. Watkins & Simpson Ltd.) **A.M.** August 9, 1957. Plant 16 to 18 inches high, erect compact bushy habit; flowers 2¼ to 2½ inches diameter, freely produced; petals broad, flat, slightly waved at margins, a deep bright orange near Tangerine Orange (H.C.C. 9). [24]

ELDORADO. (Sent by Messrs. Watkins & Simpson Ltd.) **H.C.** August 19, 1957. Plant 12 to 15 inches high, erect very compact habit; flowers 2¼ inches diameter, freely produced; petals broad, frilled, Canary Yellow (H.C.C. 2). [14]

FIRETAIL. (Raised, introduced and sent by Messrs. Denholm Seed Co., 2342 Sawtelle Boulevard, Los Angeles 64, California, U.S.A.) **H.C.** August 19, 1957. Plant 12 to 16 inches high, erect compact habit; flowers 2⅔ inches diameter, very freely produced; single outer row of petals broad, channelled, slightly waved, Saffron Yellow (H.C.C. 7) with small blotch of

mahogany at base, inner petals tightly packed, quilled, Tangerine Orange (H.C.C. 9). [37]

HARMONY SELECTED. (Sent by Messrs. W. Deal & Sons Ltd., Kelvedon, Essex.) **H.C.** September 5, 1957. Plant 12 to 15 inches high, erect compact habit; flowers 1¾ inches diameter, very freely produced; single outer row of petals broad, reflexed, waved, Tangerine Orange (H.C.C. 9) overlaid deep rich crimson mahogany, mahogany not so deep in colour when flower fully open, inner petals quilled, Tangerine Orange (H.C.C. 9). [29]

MELODY. (Raised, introduced and sent by Messrs. Ferry-Morse Seed Co.) **H.C.** August 19, 1957. Plant 18 to 20 inches high, erect compact bushy habit; flowers 1¾ to 2 inches diameter, freely produced; outer petals flat, inner petals quilled, a rich shade of Tangerine Orange (H.C.C. 9). [23]

PETITE HARMONY. (Raised, introduced and sent by Messrs. Denholm Seed Co.) **H.C.** August 9, 1957. Plant 12 inches high, erect very compact habit; flowers 1¾ inches diameter, very freely produced; outer petals flat, Indian Yellow (H.C.C. 6/1) overlaid rich mahogany, mahogany almost disappearing with age of flower, inner petals quilled, Indian Yellow (H.C.C. 6/1). [27]

PRIMROSE GEM. (Raised, introduced and sent by Messrs. Denholm Seed Co.) **H.C.** August 19, 1957. Plant 10 to 12 inches high, erect very compact bushy habit; flowers 2 to 2¼ inches diameter, freely produced; outer petals broad, waved, inner petals quilled, Empire Yellow (H.C.C. 603) deepening towards centre of petal to Lemon Yellow (H.C.C. 4). [13]

RUSTY RED. (Raised by Messrs. W. Atlee Burpee Co. and introduced and sent by Messrs. Hurst & Son Ltd.) **H.C.** August 19, 1957. Plant 20 to 24 inches high, erect compact habit; flowers 2¾ inches diameter, freely produced; petals large, flat, Indian Yellow (H.C.C. 6) overlaid mahogany, mahogany fading slightly with age of flower. [40]

Flowers double, globular

YELLOW BALL. (Sent by Messrs. Hurst & Son Ltd.) **H.C.** August 19, 1957. Plant 18 to 20 inches high, erect compact habit; flowers 1¼ to 2 inches. diameter, freely produced; petals tightly packed, frilled, Lemon Yellow (H.C.C. 4). [16]

Varieties of *Tagetes erecta*

Flowers semi-double

SUN OF JULY. (Raised, introduced and sent by Messrs. Ernst Benary, Hann-Münden, Germany.) **H.C.** August 9, 1957. Plant 24 to 28 inches high, very erect compact habit; flowers 2¾ to 3¼ inches diameter, freely produced; petals broad, slightly frilled, a clear bright orange near Tangerine Orange (H.C.C. 9). [59]

Flowers double

EARLY VERRIERES. (Raised, introduced and sent by Messrs. Vilmorin-Andrieux S.A., 4 Quai de la Mégisserie, Paris, France.) **A.M.** September 17, 1957. Plant 24 inches high, erect compact bushy habit; flowers 3¼ to 3½ inches diameter, very freely produced; petals large, channelled, waved at margins, a clear bright shade of Tangerine Orange (H.C.C. 9). [77]

ORANGE PRINCE. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd.) **A.M.** September 5, 1957. Plant 36 to 40 inches high, erect compact habit; flowers 4 inches diameter, freely produced; petals tightly

packed, very frilled, a very bright orange near Nasturtium Orange (H.C.C. 610). [60]

CRACKERJACK. (Raised and sent by Messrs. Bodger Seeds Ltd., Box 390, El Monte, California, U.S.A.) **H.C.** September 17, 1957. Plant 24 to 28 inches high, erect compact habit; flowers 4½ inches diameter, freely produced; petals large, broad, frilled at margins, mixed colours, primrose, yellow, gold, orange. [79]

CRACKERJACK. (Raised by Messrs. Bodger Seeds Ltd., and introduced and sent by Messrs. Elsoms (Spalding) Ltd., Elsom House, Spalding, Lincs.) **H.C.** October 7, 1957. Plant 29 to 30 inches high, erect compact habit; flowers 4¾ inches diameter, freely produced; petals large, broad, waved at margins, mixed colours, primrose, yellow, gold, orange. [80]

HONEYCOMB. (Raised, introduced and sent by Messrs. Bodger Seeds Ltd.) **H.C.** September 5, 1957. Plant 18 inches high, erect compact habit; flowers 2¾ inches diameter, freely produced; single outer row of petals broad, frilled, inner petals tightly packed, tubular, crested, rich orange near Orpiment Orange (H.C.C. 10). [55]

JUNE ORANGE. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd.) **H.C.** September 5, 1957. Plant 18 inches high, erect compact habit; flowers 3¼ to 3½ inches diameter, freely produced; petals large, broad, frilled, clear bright orange near Orpiment Orange (H.C.C. 10). [78]

ORANGE QUEEN. (Raised, introduced and sent by Messrs. Hurst & Son Ltd.) **H.C.** August 19, 1957. Plant 24 to 28 inches high, erect compact habit; flowers 2¾ inches diameter, very freely produced; petals waved, a brighter shade than Tangerine Orange (H.C.C. 9). [56]

SUNSET GIANTS MIXED. (Raised and sent by Messrs. William Macdonald Seed Co., P.O. Box 550, Santa Maria, California, U.S.A.) **H.C.** October 7, 1957. Plant 4 feet high, erect compact bushy habit; flowers 4¾ inches diameter, freely produced; petals large, broad, frilled at margins, mixed colours, pale yellow, golden yellow, orange. [82]

Flowers double, globular

POT O'GOLD. (Raised, introduced and sent by Messrs. J. E. Ohlsens Enke.) **A.M.** August 9, 1957. Plant 24 to 28 inches high, erect compact habit; flowers 3¼ to 3¾ inches diameter, very freely produced; petals tightly packed, frilled, very bright orange near Tangerine Orange (H.C.C. 9). [57]

Carnation-flowered

Flowers double

GUINEA GOLD IMPROVED. (Sent by Messrs. Hurst & Son. Ltd.) **A.M.** October 7, 1957. Plant 24 to 28 inches high, erect compact habit; flowers 4 inches diameter, very freely produced; petals large, broad, waved, a deep bright shade of Tangerine Orange (H.C.C. 9). [76]

SMILES. (Raised, introduced and sent by Messrs. Bodger Seeds Ltd.) **A.M.** October 7, 1957. Plant 30 inches high, very erect compact habit; flowers 4 to 4¼ inches diameter, freely produced; petals large, broad, waved, Indian Yellow (H.C.C. 6). [74]

Chrysanthemum-flowered

Flowers double

YELLOW FLUFFY. (Raised, introduced and sent by Messrs. W. Atlee Burpee Co., Hunting Park Avenue at 18th Street, Philadelphia 32, Pa.,

U.S.A.) **A.M.** October 7, 1957. Plant 30 inches high, erect compact habit; flowers 3½ inches diameter, freely produced; petals tubular, crested, Canary Yellow (H.C.C. 2). [66]

GOLDEN FLUFFY. (Raised, introduced and sent by Messrs. W. Atlee Burpee Co.) **H.C.** September 17, 1957. Plant 24 to 28 inches high, erect compact bushy habit; flowers 3¾ to 4 inches diameter, very freely produced; petals densely packed, tubular, serrated, Saffron Yellow (H.C.C. 7). [67]

GOLDEN ORB. (Raised, introduced and sent by Messrs. Denholm Seed Co.) **H.C.** September 5, 1957. Plant 24 inches high, erect compact habit; flowers 3½ inches diameter, freely produced; petals tightly packed, tubular, serrated, Sulphur Yellow (H.C.C. 1). [69]

ONIONS

Thirty-two stocks of onions were received for trial in 1957. These stocks were first grown in the trial of spring-sown onions, 1956, but failed to produce satisfactory results in that year because a heavy fall of rain in late July caused a certain portion of the trial to be flooded.

The trial was sown on March 11, 1957, after the seed had been treated with 50 per cent Dieldrin at the rate of 1½ ounces per pound of seed to control onion fly (*Hylemyia* (*Delia*)). The seed was sown in shallow drills 1 foot apart, the rate of sowing being governed by the percentage germination of each sample as stated by the sender. The trial grew away well, and such thinning as was necessary was carried out in mid-May.

The trial was inspected by a sub-committee of the Fruit and Vegetable Committee on September 27, 1957, and on its recommendation the Council of The Royal Horticultural Society have made the following awards to onions as varieties suitable for sowing in the spring.

The number in brackets after the description of the variety was that under which it was grown in the trial.

BEST OF ALL RESELECTED. (Raised by Mr. W. Peters, Givons Grove, Leatherhead, Surrey, sent by Messrs. A. L. Tozer Ltd., Pyports, Church Street, Cobham, Surrey.) **A.M.** September 27, 1957. Bulbs 3 to 3½ inches diameter, 3⅜ inches deep, globular, outer skin straw-brown. Crop very regular, ten bulbs weighed 6 lb. ½ oz., keeping qualities good. [23]

ELSOMS MAINCROP. (Raised, introduced and sent by Messrs. Elsoms (Spalding) Ltd., Elsom House, Spalding, Lincs.) **A.M.** September 27, 1957. Bulbs 3 1/16 to 3½ inches diameter, 3 1/16 inches deep, globular, outer skin straw-brown. Crop regular, ten bulbs weighed 6 lb. 7 oz., keeping qualities fairly good. [21]

GIANT ZITTAU RESELECTED. (Sent by Messrs. A. L. Tozer Ltd.) **A.M.** September 27, 1957. Bulbs 3¼ to 3¾ inches diameter, 3¼ to 3¾ inches deep, globular, outer skin straw-brown. Crop regular, ten bulbs weighed 6 lb. 11 oz., keeping qualities very good. [14]

ROUSHAM PARK HERO SELECTED. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd., 26/29 Drury Lane, Covent Garden, London, W.C.2.) **A.M.** September 27, 1957. Bulbs 3½ to 4 inches diameter, 2½ to 2¾ inches deep, flattened globe, outer skin straw-yellow. Crop very regular, ten bulbs weighed 6 lb. 5 oz., keeping qualities fair. [5]

SUTTON'S A.1. (Raised, introduced and sent by Messrs. Sutton & Sons Ltd., Reading, Berkshire.) **A.M.** September 27, 1957. Bulbs 3½ to 4½ inches

diameter, 2$\frac{9}{16}$ inches deep, flat-round, outer skin straw-brown. Crop very regular, ten bulbs weighed 7 lb. 1$\frac{1}{2}$ oz., keeping qualities fairly good. [11]

A.1 RESELECTED. (Sent by Messrs. J. L. Clucas Ltd., Ormskirk, Lancashire.) **H.C.** September 27, 1957. Bulbs 3$\frac{1}{2}$ to 3$\frac{3}{4}$ inches diameter, 3$\frac{1}{16}$ inches deep, slightly flattened globe, outer skin brown. Crop regular, ten bulbs weighed 5 lb. 11$\frac{1}{2}$ oz., keeping qualities good. [10]

BEST OF ALL. (Raised, introduced and sent by Messrs. L. Daehnfeldt Ltd., Vestergade 75, Odense, Denmark.) **H.C.** September 27, 1957. Bulbs 3 to 3$\frac{3}{4}$ inches diameter, 3 inches deep, globular, outer skin straw-brown. Crop regular, ten bulbs weighed 5 lb. 12 oz., keeping qualities good. [24]

BEST OF ALL. (Raised, introduced and sent by Messrs. Elsoms (Spalding) Ltd.) **H.C.** September 27, 1957. Bulbs 2$\frac{3}{4}$ to 3$\frac{3}{4}$ inches diameter, 3$\frac{1}{4}$ inches deep, globular, outer skin straw-brown. Crop regular, ten bulbs weighed 5 lb. 14$\frac{1}{2}$ oz., keeping qualities very good. [25]

BEST OF ALL SELECTED. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd.) **H.C.** September 27, 1957. Bulbs 2$\frac{3}{4}$ to 3$\frac{1}{2}$ inches diameter, 3 inches deep, globular, outer skin straw-brown. Crop regular, ten bulbs weighed 5 lb. 14$\frac{1}{2}$ oz., keeping qualities very good. [27]

GIANT ZITTAU. (Raised, introduced and sent by Messrs. Bakker Bros., Noordscharwoude, Holland.) **H.C.** September 27, 1957. Bulbs 3$\frac{1}{2}$ to 4 inches diameter, 3 inches deep, slightly flattened globe, outer skin straw-yellow. Crop regular, ten bulbs weighed 5 lb. 13 oz., keeping qualities very good. [13]

JOHNATHAN. (Raised, introduced and sent by F. J. Powley, Esq., Birch-Croft, Battlefields, Holbeach, Spalding, Lincs.) **H.C.** September 27, 1957. Bulbs 3$\frac{1}{4}$ to 3$\frac{3}{4}$ inches diameter, 2$\frac{3}{8}$ inches deep, flat-round, outer skin straw-brown. Crop regular, ten bulbs weighed 5 lb. 12$\frac{1}{2}$ oz., keeping qualities fair. [8]

SHARPE'S STANDARD EXHIBITION. (Raised, introduced and sent by Messrs. Charles Sharpe & Co. Ltd., Sleaford, Lincs.) **H.C.** September 27, 1957. Bulbs 3 to 4 inches diameter, 2$\frac{3}{8}$ inches deep, flat-round, outer skin straw-yellow. Crop regular, ten bulbs weighed 7 lb., keeping qualities fairly good. [7]

SUTTON'S SELECTED AILSA CRAIG. (Raised, introduced and sent by Messrs. Sutton & Sons Ltd.) **H.C.** September 27, 1957. Bulbs 3 to 3$\frac{1}{2}$ inches diameter, 3$\frac{3}{4}$ inches deep, coconut shaped, outer skin straw-yellow. Crop regular, ten bulbs weighed 5 lb. 14 oz., keeping qualities fair. [32]

RIDGE CUCUMBERS

Thirty stocks of ridge cucumbers were received for trial at Wisley in 1957. The trial was sown in the open, on level ground, on May 31, 1957. The seed was sown in stations spaced 2$\frac{1}{2}$ feet apart and five seeds were sown at each station; after germination the seedlings were thinned to one plant at each station. The rows which were 32 feet long, were spaced 3$\frac{1}{2}$ feet apart and three rows of each stock were grown.

The ground was prepared by digging in well-rotted farmyard manure during the winter of 1956–57. A base dressing of fertiliser consisting of 2 cwt. per acre of hoof meal, 3 cwt. per acre of bonemeal and 2 cwt. per acre of sulphate of potash, was applied ten days prior to sowing. The soil between the plants was mulched with well-rotted compost at the end of June to conserve moisture.

The trial was inspected by a sub-committee of the Fruit and Vegetable Committee on September 27, 1957, and on its recommendation the Council of The Royal Horticultural Society have made the following awards to ridge cucumbers.

The number in brackets after the description of the variety was that under which it was grown in the trial.

Fruits long, cylindrical, dark green

PERFECTION IMPROVED. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd., 27/29 Drury Lane, Covent Garden, London, W.C.2.) **A.M.** September 27, 1957. Plant vigorous; leaves large, flat, dark green. Flowers large, set very freely. Fruits 12 to 14 inches long, 2½ to 2¾ inches diameter, symmetrical, ridged; neck short; flesh thick. First eight plants of first row produced forty-nine fruits. [6]

SUTTON'S LONG GREEN. (Raised, introduced and sent by Messrs. Sutton & Sons Ltd., Reading, Berkshire.) **A.M.** September 27, 1957. Plant very vigorous; leaves large, flat, dark green. Flowers large, set freely. Fruits 12 to 14 inches long, 3 to 3½ inches diameter, symmetrical, ridged; neck short; flesh thick. First eight plants of first row produced forty-five fruits. [22]

CHINESE GIANT CLAUDIA. (Raised, introduced and sent by Messrs. L. Clause S.A., Brétigny-sur-Orge, France.) **H.C.** September 27, 1957. Plant very vigorous; leaves large, flat, dark green. Flowers large, set freely. Fruits 12 to 14 inches long, 2¾ to 3¼ inches diameter, symmetrical, ridged; neck fairly short; flesh fairly thick. First eight plants of first row produced twenty-nine fruits. [24]

CLUSEED WITHERS TEN WEEK. (Raised by Mr. E. W. Withers, introduced and sent by Messrs. J. L. Clucas Ltd., Ormskirk, Lancashire). **H.C.** September 27, 1957. Plant vigorous; leaves large, flat, dark green. Flowers large, set fairly freely. Fruits 9 to 11 inches long, 2½ to 2¾ inches diameter, fairly symmetrical, ridged; neck short; flesh thick. First eight plants of first row produced forty-seven fruits. [12]

HALF LONG IMPROVED. (Raised, introduced and sent by Messrs. Gebr. van den Berg N.V., Naaldwijk, Holland.) **H.C.** September 27, 1957. Plant vigorous; leaves large, flat, dark green. Flowers large, set freely. Fruits 12 inches long, 2¾ inches diameter, symmetrical, ridged; neck short; flesh thick. First eight plants of first row produced forty-six fruits. [5]

IDEAL. (Raised and sent by Messrs. J. E. Ohlsens Enke, Copenhagen, Denmark.) **H.C.** September 27, 1957. Plant vigorous; leaves large, flat, dark green. Flowers large, set freely. Fruits 9 to 9½ inches long, 3½ inches diameter, symmetrical, slightly ridged; neck short; flesh thick. First eight plants of first row produced thirty-two fruits. [2]

PERFECTA. (Raised, introduced and sent by Messrs. Wed. P. de Jongh, Stationsweg 25, Goes, Holland.) **H.C.** September 27, 1957. Plant vigorous; leaves large, flat, dark green. Flowers large, set fairly freely. Fruits 10½ to 12 inches long, 2½ to 3 inches diameter, fairly symmetrical, ridged; neck fairly short; flesh medium thickness. First eight plants of first row produced thirty-eight fruits. [9]

Fruits long, cylindrical, very dark green

PALOMAR. (Raised, introduced and sent by Messrs. Ferry-Morse Seed Co., Mountain View, California.) **A.M.** September 27, 1957. Plant

vigorous; leaves small, flat, dark green. Flowers small, set freely. Fruits 8½ to 10 inches long, 2 to 2½ inches diameter, very symmetrical, very slightly ridged; neck short; flesh medium thickness. First eight plants of first row produced forty-nine fruits. [19]

GENEROUS. (Raised, introduced and sent by Messrs. Vilmorin-Andrieux S.A., 4 Quai de la Mégisserie, Paris, France.) **H.C.** September 27, 1957. Plant vigorous; leaves large, slightly crinkled, dark green. Flowers large, set freely. Fruits 9½ to 11 inches long, 3 inches diameter, symmetrical, slightly ridged; neck fairly short; flesh thick. First eight plants of first row produced forty-five fruits. [3]

Gherkin or pickling cucumbers

Fruits short, cylindrical, medium green

CAVALLIUS PICKLING. (Raised, introduced and sent by Messrs. J. E. Ohlsens Enke.) **A.M.** September 27, 1957. Plant vigorous; leaves medium size, flat, dark green. Flowers medium size, set freely. Fruits 6 inches long 3 inches diameter, symmetrical; neck short; flesh fairly thick. First eight plants of first row produced thirty-six fruits. [32]

RHINISH PICKLING. (Raised, introduced and sent by Messrs. A. Hansen, Kastrup, Amager, Denmark.) **H.C.** September 27, 1957. Plant vigorous; leaves medium size, flat, medium green. Flowers large, set fairly freely. Fruits 6¼ to 7 inches long, 2½ to 2¾ inches diameter, symmetrical; neck short; flesh fairly thick. First eight plants of first row produced thirty fruits. [30]

SUPERB. (Raised, introduced and sent by Messrs. J. E. Ohlsens Enke.) **H.C.** September 27, 1957. Plant vigorous; leaves medium size, flat, medium green. Flowers medium size, set freely. Fruits 5½ to 6 inches long, 2¾ to 3 inches diameter, symmetrical; neck very short; flesh fairly thick. First eight plants of first row produced forty fruits. [29]

LATE CULINARY PEAS

Thirteen stocks of late culinary peas were received for trial at Wisley. Half a pint of seed of each variety was sown on April 3, 1957. The variety 'Gladstone' was grown as a control variety.

The trial was inspected by a sub-committee of the Fruit and Vegetable Committee on July 17, 1957, and on its recommendation the Council of The Royal Horticultural Society has made the following awards to late culinary peas.

RAYNES PARK. (Raised and sent by Messrs. Carters Tested Seeds Ltd., Raynes Park, London, S.W.20.) **A.M.** July 17, 1957. Haulm 3¾ feet high, dark green; pods 4 inches long, dark green, straight, pointed, borne in pairs; peas medium size, light green, 8 or 9 per pod; crop heavy, fit for use on July 11. [2]

SHARPE'S LIBERTY. (Raised, introduced and sent by Messrs. Charles Sharpe & Co. Ltd., Sleaford, Lincolnshire.) **A.M.** July 17, 1957. Haulm 4 feet high, dark green; pods 5 inches long, dark green, curved forward, pointed, borne in pairs; peas medium size, bright green, 8 or 9 per pod; crop heavy, fit for use on July 13. [6]

DOBIE'S GREENSLEEVES. (Raised, introduced and sent by Messrs. Samuel Dobie & Son Ltd., 11 Grosvenor Street, Chester.) **H.C.** July 17, 1957. Haulm 6¼ feet high, light green; pods 5 to 5½ inches long, medium

green, curved forward, pointed, borne in pairs; peas large, bright green, 7 or 8 peas per pod; crop heavy, fit for use on July 8. [8]

SUTTON'S CONTINUITY. (Raised, introduced and sent by Messrs. Sutton & Sons Ltd., Reading, Berkshire.) **H.C.** July 17, 1957. Haulm 4½ feet high, dark green, pods 4½ to 4¾ inches long, dark green, straight, blunt, borne singly and in pairs; peas large, light green, 6 per pod; crop heavy, fit for use on July 20. [5]

WIMBLEDON. (Raised and sent by Messrs. Carters Tested Seeds Ltd.) **H.C.** July 17, 1957. Haulm 4¾ feet high, medium green; pods 4 to 4½ inches long, medium green, curved forward, pointed, borne in pairs; peas large, bright green, 6 per pod; crop heavy, fit for use on July 12. [7]

PLANTS TO WHICH AWARDS HAVE BEEN MADE IN 1956–1958

Clivia 'Bodnant Yellow' F.C.C. April 15, 1958, as a flowering plant for the cool greenhouse. Described R.H.S. JOURNAL, **75**, p. 334 (**A.M.** 1950). Shown by The Lord Aberconway, Bodnant, Tal-y-Cafn, N. Wales (Fig. 67).

Helleborus niger 'Potter's Wheel' A.M. February 18, 1958. This excellent form of *Helleborus niger*, the "Christmas Rose", was first observed in the garden of a cottage in the Pottery District. The leaves are radical, pedately lobed, leathery, and a glossy dark green. Each segment measures from 2½ to 5 inches long and 1½ to 2 inches wide, and the tips are widely toothed. The immense flowers measure from 4 to 5 inches across, with broad, glistening white, overlapping sepals, the bases of which, together with the nectaries, are a deep, clear, green. This pleasant colour effect is admirably set off by the cluster of golden stamens in the centre of the flower. The 9-inch stems on which the flowers are carried are erect and sturdy, and serve to lift them, clean and unsullied, above the splashes of winter rain. Exhibited by Miss H. Davenport-Jones, Washfield Nurseries, Hawkhurst, Kent (Fig. 68).

Leucanthemum hosmariense A.M. April 1, 1958. A native of Spanish Morocco and Algeria, this attractive hardy plant has woody stems, branching from the base, and silvery grey foliage. Each leaf consists of three trifid leaflets. From the end of each branch rises a silver-grey scape, 2½ inches long, bearing a single white daisy-like flower-head, over 2 inches across, with a central disc of yellow shading to green in the centre. The involucre consists of silvery bracts edged with black, being very conspicuous before the flowers open. The whole plant is about 8 inches high. Exhibited by Dr. J. G. Elliott, Copperkins, Potters Corner, Ashford, Kent (Fig. 77).

Peperomia caperata A.M. November 27, 1956. This distinctive little plant is for the intermediate greenhouse and by reason of its easy culture can be grown as a house plant. In shape the leaf blade is broadly ovate with a peltate insertion of the petiole. The lamina is lined with

deep furrows, the ridges of which have silvery markings while the remainder of it is coloured dark green. The inflorescence is in the form of a slender spike, about 3 inches long, with minute white flowers densely packed upon it. When the plant was shown MR. W. G. MACKENZIE raised the question of the validity of its specific epithet. As a result the matter was investigated at the Royal Botanic Gardens, Kew, and the name was legitimized in a note by MR. T. G. YUNCKER, in *The Kew Bulletin*, No. 3, 1957, page 421. Under this reference MR. YUNCKER writes as follows:—

"It (*Peperomia caperata*) has entered the trade extensively both in Europe and in America where it has become quite popular as a cultivated ornamental house plant under the name of *Peperomia caperata*. It is not known who gave the plant this very appropriate Latin epithet, which means 'wrinkled'. It has been thought best to retain and legitimise this name, which has not been previously used in the genus, and also because of its present wide-spread accepted use horticulturally. This species is most closely allied with those included in the subgenus *Tildenia* Miq."

Exhibited by L. Maurice Mason, Esq., Talbot Manor, Fincham, King's Lynn, Norfolk.

ORCHIDS

Cycnoches chlorochilon 'Calderstones' A.M. November 5, 1957. The pseudobulb of this orchid is some 12 inches in length and thick and fleshy in character. The leaves, which are up to 10 inches long and 2½ inches in width, arise from the apex of the pseudobulb in a spreading fan-like formation. The scape arises from a leaf axil and in this instance carried ten large and sweetly scented flowers, each about 6 inches across and 5 inches deep. In the mature flower the tepals are Aureolin Yellow (H.C.C. 3/2), with overtones of Sulphur Yellow (H.C.C. 1/2) and a sheen of Chartreuse Green (H.C.C. 663/1). In the less mature flower the colour is not as rich. The ventricose labellum is greenish white and has at the base a dark green boat-shaped appendage. The outer whorl of tepals is made up of two oblong parallel erect lobes and a broader pendent lobe which is gracefully reflexed at the apex. The inner whorl of tepals consists of two narrowly ovate lateral lobes, each 2¾ inches long, and 1½ inches wide. The slender column arises at the base of the labellum, curves downward and forward, and then reflexes upward to an enlarged tip. This excellent plant is a cultivated variety of *Cycnoches chlorochilon*, the "Swan-necked Orchid" of Colombia. The plant exhibited was an especially fine specimen, bearing a large number of blooms, and was all the more notable in that the flowers were female, a great rarity in this species.

As well as being given an Award of Merit, *Cycnoches chlorochilon* 'Calderstones' earned a Certificate of Cultural Commendation for the exhibitor, Mr. P. H. Conn, Director, Parks and Gardens Department, Mansion House, Calderstones Park, Liverpool 18.

Dendrobium phalaenopsis (Artur Elle g.) 'Hilde Morgenstern' A.M. October 8, 1957. This cultivar was obtained by crossing *D.* 'Rudolf Lieske' with *D. phalaenopsis schroederianum*. The flower spike is terminal, borne on a tall slender cane-like pseudobulb, and carried nine fully developed flowers and several unopened buds. Individual flowers are slightly over 3 inches across, brilliantly coloured; the sepals rich rosy-purple with slightly recurved tips; the spur deep rosy-purple; petals very broad, also rich rosy-purple, with the prominent veins slightly deeper in colour. The lip is pointed at apex, maroon-purple in the centre with incurving side lobes meeting over the column, part of which is also maroon-purple. Exhibited by Messrs. H. Wichmann, Celle, Germany.

Dendrobium phalaenopsis 'Celle' A.M. October 8, 1957. The flower spikes of this attractive orchid are terminal on slender pseudobulbs. The racemes were approximately 12 inches long, carrying six fully developed flowers and several buds. Flowers 2½ inches across; sepals lanceolate, white flushed on the margins with pale cyclamen purple; petals much broader, rhomboid, tapering at the base, cyclamen purple with deeper coloured veins, the lip three-lobed, lateral lobes rounded incurved, but not forming a hood; middle lobe rounded apiculate at the tip; deep cyclamen purple with a few yellowish white lines in the centre fading to a lighter shade of cyclamen purple towards the margins of the lobes. The column is erect, slightly angled, cyclamen purple flushed with white. Exhibited by Messrs. H. Wichmann, Celle, Germany.

Stanhopea wardii 'Fincham' A.M. September 10, 1957. This plant has oblong ovate furrowed pseudobulbs, with broad plicate leaves, and the pendulous scape of this fine specimen had eleven large fragrant flowers. The sepals and petals are straw yellow, sparsely speckled with small purple-red spots. The hypochil is saccate at the base, deep orange in colour, this orange being also suffused into the base of the sepals and petals. The mesochil has two light yellow falcate horns bent over the yellow epichil and both are spotted with minute purple-red spots. Column almost straight, greenish on the upper surface, pale yellow below, with a few spots at the apex, and along the margin. Exhibited by L. Maurice Mason, Esq., Talbot Manor, Fincham, Norfolk.

BOOK NOTES

"Capability Brown." By Dorothy Stroud. 2nd Ed. 228 pp. Illus. (Country Life.) 3 gns.

The first edition of this excellent book was reviewed in the R.H.S. JOURNAL in November 1951 and there is little to add to the appreciation then expressed. The text has been revised and slightly expanded owing to the discovery of further original material. Miss Stroud's clear and absolutely unaffected style is a pleasure to read, and the thoroughness of her treatment of the whole subject is obvious. But is it not claiming too much for Brown to rank him a great man? He was a successful man, but that is a different thing. He had competence and immense energy; he seized all his chances,

and he had that almost inexplicable flair for business which in every generation carries certain men to success over the heads of others apparently more gifted. He devised a pattern in landscape gardening, which proved a "best seller", he became the fashion; and never attempted to explore his own capabilities any further. His work was both safe and interesting, his rewards were immediate, and he attained his objective—riches and an assured position in society. We readily offer him our congratulations, but without any particular admiration of his personality.

The excellent plates of the first edition are repeated throughout. It is a pity that in both editions Switzer's "Ichnographia" is referred to (p. 23) as "Iconographia".

F. CARDEW

"The Speaking Garden." By Edward Hyams. 181 pp. Illus. (Longmans.) 16*s*.

This is a lively and entertaining book. Mr. Hyams postulates that cultivated plants are "artifacts", that is to say, objects made by man, and that "we should praise those men and pay their works the compliment of study". In the essays that compose this book he says he has "tried to treat of diverse plants as the critic and scholar treat of works of art". One of the most interesting things about the book is the technique of employing the philology of plant names to throw light on the history of various plants. But the author has also called the geneticist and morphologist to his aid and in his book the critic, the historian and the scientist go hand in hand.

The book mainly deals with plants that have been of economic importance to civilization in the last few thousand years. The essays on vineyards in England and perpetual fruiting strawberries are, of course, on subjects which the author has made his own, while that on maize, that cereal with so remarkable a history, shows how the history of a plant may be bound up with the development of a civilization.

This book is full of humour and information and certainly approaches plant study from a new angle.

MORTON

Gerard van Spaendonck. "Flowers drawn from Nature." Edited by Wilfrid Blunt. Folio. (The Leslie Urquhart Press, Plaw Hatch Hall, Sharpthorne, Sussex.) 4 gns.

Van Spaendonck, although still comparatively little known, was undoubtedly among the greatest flower painters of the last two centuries. Wilfrid Blunt considers that his talents were probably even greater than those of Redouté, who was his pupil and successor as royal painter of flowers and professor at the Museum du Jardin du Roi in Paris, now the Jardin des Plantes. Unfortunately, few see his contributions to the wonderful collection of flower paintings on vellum made between 1780 and 1785, but he did also publish one book in 1800, *Fleurs dessinées d'après Nature*, a rare volume today. The plates in this fine folio have been reproduced from an original copy of the work with very considerable care in eight-colour litho-offset by Messrs. Lohse, in Frankfurt, and they have succeeded in retaining well the softness of the stipple engraving method used in the original. Only a few copies were hand-coloured, while others were printed in basic colours and doubtless retouched by hand under the supervision of the artist. Of the original 24 plates, 16 are reproduced here, portraying for the most part commoner garden flowers, the rose, the iris, the poppy and the campanula.

Wilfrid Blunt contributes a loving and scholarly introduction with the few historical facts that are known and there are also notes on each plate. The binding, typography and production of the book are excellent and it pays a worthy tribute to a very notable flower painter.

PATRICK M. SYNGE

"The Living Forest." By H. L. Edlin. 304 pp. and index. (Thames and Hudson, 1958.) 25*s*.

This is a book that should appeal to the many readers who profess affection for trees and tree-lore and who are interested in the influences trees have on the amenities and economics of our countryside, and in the adornment of our parks and streets of the towns. References to the philology of tree-names and the numerous place-names in Great Britain that are associated with one or another of our native trees are also intriguing. The story is more graphically descriptive of the tree than of the forest. The author has assembled a series of essays on individual species or groups of trees and shrubs, each based on a pleasant medley of information, clearly culled from a wide variety of sources, that is well calculated to hold the interest of readers.

Part One deals briefly with the beginning of the geological era in which we live and with the species we rightly claim as native. The subject-matter is not new.

The chapters that follow give a diversity of information and interesting description of the botanical, ecological, aesthetic and commercial characters of the native species and also of the principal exotic trees and shrubs that are considered to have become acclimatized in the period from pre-Roman times to the coming of the newly discovered *Metasequoia glyptostroboides* from China in 1947. Past and present geographical distributions of the different species together with numerous facts and figures concerning growth, habits and utilizations are quoted. Of the views and theories expressed a few may possibly be said to be a little venturesome, as are some of the references to the longevity of trees, especially the more venerable of our oaks and yews, the dating of which is ever an open pitfall to dendrologists and others. Some original ideas are expressed that merit attention. The chapters on the ash, oak, beech and sycamore and maples are of particular interest although it may be said that the black spot on sycamore leaves certainly occurs in the Royal Borough of Kensington, surely a sufficiently urbanized district.

The book is well printed and attractively produced, and it will be found easy to read. Lovers of woodland and the trees to be found therein cannot fail to derive pleasure and instruction from its pages. There is a comprehensive index of the species to which reference is made in the text.

W. L. TAYLOR

"Shrubs and Trees for Australian Gardens." By Ernest E. Lord. xxv + 443 pp. Illus. 3rd Ed. (Lothian Pub. Co.; Melbourne 1956.) £A6 15*s*.

Australia is passing through a phase of rapid expansion in her population. The consequent necessity for building new homes and laying out new gardens is stimulating interest in horticulture in a land where a certain conservatism has long reigned. No doubt this attitude was a result of the difficulty of importing plants in early colonial days, coupled with a nostalgic desire to grow the familiar plants of the homeland. But whereas British gardens have been greatly enriched during the last seventy years by the labours of a number of plant collectors, Australian gardens have remained somewhat static and a visitor to that continent is struck by a lack of variety in the garden flora. Ernest E. Lord's book will go a long way towards stimulating the renaissance of garden consciousness in Australia. To the British horticulturist it presents a cross-section of the Australian flora. Numerous excellent photographs show the wealth of blossom, and a range of floral form from the familiar symmetry of *Crowea* and *Hibbertia* to the strange and exotic shapes of the *Banksias* and *Grevilleas*, the scarlet claws of *Calothamnus* and the chef's cap of *Correa bauerleni*. A few in colour convey something of their brilliance and intensity of hue. Unfortunately, very few of these floral gems are hardy enough to grow out of doors except in the mildest parts of the British Isles. In the early years of last century a surprising number of them were cultivated as stove plants, as the pages of the *Botanical Magazine* and other periodicals of the time bear witness. Surely, here is an opportunity for a renaissance in British horticulture. If our ancestors could rear these plants successfully, they should hold no terrors with modern greenhouse equipment. This book will be a useful guide to anyone who has fallen victim to the strange charm of Australian plants. He will find some indication of degrees of hardiness in the regional grouping of the subject matter. He will not find detailed descriptions of plants. The "descriptive lists" that make up the bulk of the work give, rather, an appraisal of the garden merit of the plants with a brief indication only of their salient features. To have done more would have made it impossible to cover in one volume the wide sweep of Australian plants and include as well the numerous introduced trees and shrubs now available to the Australian garden lover. The appearance of a third edition is evidence enough that the book fulfils a need in Australia, but it would adorn any plantsman's library.

R. MELVILLE

"Gardening in East Africa." A practical handbook. Edited by A. J. Jex-Blake. 4th Ed. Royal 8vo. 414 pp. Illus. (Longmans, Green.) 45*s*.

This new edition of an already well-known book on East African gardening has been very extensively revised from the previous edition published in 1950. Most noticeably, new plates have been substituted in all cases except one, and the vigorous reproduction by Messrs. Jarrold of the very fine drawings by Mrs. Joy Adamson attains an unusually high standard. Eight chapters out of twenty-seven are entirely

new and the others have been either enlarged or amended. This has long been regarded as a standard work of great usefulness and all gardeners in East Africa will certainly need this new edition, since it covers a large range of gardening—from the hot coastal regions to the highlands of Kenya and Uganda.

PATRICK M. SYNGE

"Insect Pests of Farm, Garden and Orchard." By L. M. Peairs and R. H. Davidson. 5th Ed. Illus. 661 pp. (Chapman and Hall, London; John Wiley, New York.) 68*s*.

Many changes have occurred in this American book on applied entomology since its introduction in 1912. The new edition has been thoroughly revised and in particular more space has been devoted to that part of the subject, namely chemical control which has made the greatest progress during the last decade. British readers will probably find the information on this section the most useful, especially since the majority of recently introduced insecticides originated in the United States; consequently, their experience with them is greater than ours. At the same time it is worth remembering that conditions over here are different and results are not always comparable.

Since the book is American the insects mentioned are naturally ones prevalent in the new world. Despite this, many of our familiar plant pests are included because they are common to both areas; for example, peach aphid, cabbage root fly, carrot fly, vine weevil, gooseberry sawfly, codling moth, red spider mite, to name but a few. Others, such as wire-worms and chafer grubs are represented by different, but closely related species, still enabling comparisons to be made; for instance, the Japanese beetle may be regarded as the American equivalent of our cockchafer or May-bug.

As readers of the previous editions will be aware, the insects are considered under their host plants—a method with obvious advantages to horticulturists who are first and foremost plantsmen. Also included are chapters on household pests and those insects and mites injurious to man and domestic animals. One of the features of the book is the abundance of illustrations, including both photographs and drawings; there is scarcely a page without one or more figures on it.

V. W. FOWLER

"Citrus Fruits." By H. H. Hume. 444 pp. Illus. (The Macmillan Co., New York and London, 1957.) £3 13*s*. 6*d*.

Many will welcome the appearance of a new and up-to-date edition of this most useful book on the citrus fruits, which appeared first in 1926. During the thirty-odd years that have passed very great changes have taken place in the cultivation and production of citrus fruits and citrus products. This applies particularly in the United States where the annual production of oranges alone is over a hundred million boxes or about a third of the estimated total world production. The health-giving properties of citrus fruits and juices with their high vitamin content is well established. During the Korean campaign, for every 1,000 lb. of U.S. Army rations 174 lb. were citrus products. It was found the use of citrus products not only contributed much to the health and morale of the soldier but recovery from wounds and shock was greatly expedited thereby.

The book is well produced. The general layout and the chapter headings are the same or similar to those of the original work. Each chapter or section has been brought thoroughly up to date and there are many new photographs among the 250 illustrations provided. Perhaps the only criticism English readers will have is the high price of the book to them.

F. N. HOWES

"Biological Aspects of the Transmission of Disease." Edited by C. Horton-Smith. (Oliver and Boyd, for the Institute of Biology, 1957.) 184 pp. 21*s*.

Great as the advance of the sciences has been in recent times, innumerable problems still remain to be solved, and it seems that further advances can only be attained by specialists devoting almost their whole time to a single section of a particular science. This makes it difficult for them to keep in touch with what is being achieved in related subjects.

To overcome this it is customary to hold periodic meetings of specialists who give accounts of their activities which are discussed in some detail. A quotation from one of these in the volume under review indicates quite clearly how important these meetings can be: "Part of the value of this meeting of biologists of widely different interests and

experience is to realize how attention to the details of only one particular aspect of a subject may be misleading."

The papers read at these meetings and the discussions that follow are duly published in a single volume, so making available to anyone interested the present position of any particular branch of the science concerned.

The general subject of the present volume is that of the mode of dispersal and transmission of certain agents of disease affecting both animals and plants; and the twenty-two papers have been contributed by leading authorities in their various branches of specialized knowledge. Thus, the soil as a reservoir of plant pathogens, the micro-fungi affecting man, animals and even the plankton algae, the bacteria and helminths of veterinary importance, the viruses of man, animals and plants, and the international dissemination of plant diseases and pests in trade are considered. There are also papers on the evolution and properties of some of these disease agents.

All are of interest not only to the pathologist but also to the general biologist, and the Institute of Biology and the editor are to be congratulated on producing such an admirable volume which is a welcome addition to the previous symposia sponsored by the Institute.

W. J. DOWSON

"Botany for Gardeners." By Harold William Rickett. 8vo. 236 pp. Illus. (The Macmillan Company, New York and London, 1957.) 24*s*. 6*d*.

The author has for many years been staff bibliographer and a teacher of botany at the New York Botanic Garden, and his book is based upon a course of lectures given in recent years to a mixed audience of gardeners, nurserymen, teachers and others from many walks of life. Setting out to explain to the layman how plants grow, Dr. Rickett starts with the germinating seed and describes the tissues which gradually become recognizable within the plant, and the work each performs as a contribution to the well-being of the whole organism. Attention is not confined to the seed-bearing plants: ferns and fungi likewise come under review.

There have been books on botany for gardeners in the past, but this is not just the same old stuff rehashed. Certainly the basic facts are there, but in addition the author gives us much up-to-date information about physiological and genetical matters, presenting it in a chatty style which makes for easy reading. Technical terms cannot, of course, be wholly omitted from a book of this kind, but where they have had to be used footnotes give their derivation and other points of interest.

An admirable book to read on a wet winter's afternoon when work in the garden is out of the question.

N. K. GOULD

"Soil-Plant Relationships." By C. A. Black. 8vo. 332 pp. (Chapman & Hall for John Wiley, New York.) 56*s*.

In dealing with soil-plant relationships Professor Black quite rightly lays emphasis on the soil as a medium for plant growth. There is a wealth of information about soils, and yet technical details are not over-emphasized. The soil is studied rather from the point of view of plant growth than of being an entity in itself. Such a treatment will prove refreshing to students of agriculture and of horticulture. General scientific principles are dealt with throughout so that the book is in no way localized. The only use of local material is for illustration of specific principles. Problems are submitted to the student in such a way as to give the feel of an investigation rather than mere statement of facts.

The chapter on cation-exchange is particularly interesting and deals fully with the elements calcium, magnesium, potassium and sodium in so far as reference can be made to their utilization by plants. Although this chapter requires a knowledge of chemical principles it is written so clearly that students with a pre-University training in chemistry should understand this very important part of soil-plant relationships. The author explains quite clearly the different processes by which plant roots remove ions from surrounding solutions—namely by "active transport", "passive permeation" or "exchange adoption". Equally interesting is the chapter on soil acidity. The interest of the student is aroused by the suggestion that there is no "agreement as to what constitutes an acid soil" as the results vary with the conditions of measurement. Full treatment is given to methods of determining soil acidity, but it is pointed out that different procedures for measuring the pH do not give the same result and therefore some questions still exist regarding the physical significance of the measurements in certain instances.

The bibliographical references quoted at the end of each chapter will prove of great use to the student who wishes to consult the original papers.

Altogether this is an excellent treatise for agricultural and horticultural students.

F. FAIRBROTHER

"Control of the Plant Environment." Edited by J. P. Hudson. 240 pp. Illus. (Butterworths Scientific Publications, London, and Academic Press, New York.) 42s. ($7.50.)

This report of the proceedings of the fourth Easter School in Agricultural Science of the University of Nottingham is likely to remain for many years an essential part of the equipment of any research worker concerned with growing plants in controlled environments. The paper on "General Aspects of Environmental Control" by the Editor clears the air admirably both as regards the purposes for which such control can be used and the pros and cons of various ways of accomplishing it; this should eliminate much of the present vague and muddled thinking on the subject and it should be pondered by every intending designer or user—a large and rapidly growing class.

It appears unlikely that the general horticultural reader will wish to own the volume but it is nevertheless well worth borrowing from a library to get some idea of the wide range of plant physiological and other problems that are being tackled experimentally by controlling the physical conditions under which plants grow; also of the extraordinary variety of equipment that is used, ranging from "string and sealing-wax" installations made for a few pounds to elaborate so-called "phytotrons" costing hundreds of thousands. If determined and curious enough to browse extensively, the non-specialist reader will find much to interest him, both in the field of greenhouse design and that of effects of environment on plant development.

O. V. S. HEATH

"Deutsche Obstsorten." By H. Krümmel, W. Groh and G. Friedrich. 10 vols. Illus. (Deutscher Bauernverlag, Berlin.) 14.60 DM per vol.

This new German pomology describes in detail 145 varieties of all kinds of top fruits from apples to service berries and, in the four volumes so far received, the majority, with the exception of cherries, are well known in this country. Further descriptions will be issued from time to time, and as the work is in loose-leaf form these will be fitted in easily enough. Each variety is described on the four sides of a folded sheet enclosing loose coloured plates. The descriptions are very well ordered, beginning with one or two synonyms, origin, references in the literature and general information about the variety in Germany, going on to practical cultural and market information and really excellent pomological and morphological descriptions of tree, fruit, winter shoots and leaves. Fruit measurements and their ratios are perhaps given in too much detail, as the size and shape of a fruit depend a great deal on pollination and seasonal conditions, and although the information given here is based on both typical and atypical fruits, it might still prove impossible to match a fruit whose identity was being sought.

The habit of the tree is well illustrated by a black-and-white photograph of a tree in winter with a note of its age, rootstock, locality and type of soil, as well as actual dimensions. There are line drawings of sectioned fruits and, in the case of stone fruits, black-and-white photographs of stones from all angles. The coloured plates, two for apples and pears and one for the rest, show, roughly life-size, whole and sectioned fruits, pips and stones, flowers, including buds and sections, leaves and winter shoots. The first volume contains two colour charts printed, unlike the plates, on glossy paper, reference to which would have been made easier if in the text the colours had been referred to by index number as well as by name. However, a key promised for the future may make use of these numbers. It would not be wise to comment on the colour plates, as the colours of a fruit vary considerably under different environmental conditions, and though to us the illustration of 'James Grieve', for instance, may seem rather too bright and yellow, it may agree very well with that variety as grown in Germany.

This work probably contains more detailed information on the hardy fruits it deals with than any other pomological work so far published. However, it is unlikely to appeal to the grower, at any rate in this country, as, not being interested in pomology, he would be put off by the mass of detail. A useful book for the grower might be extracted from this work, but the book as it stands is for the specialist, for the practical pomologist engaged on identification and for the student, and it can be recommended for the reference library.

J. M. S. POTTER

"The U.C. System of Producing Healthy Container Grown Plants.' Edited by Kenneth F. Baker. (University of California.) Price $1.

Standard composts and standard methods of handling plants have been in use in England for the last twenty years. They are now familiar to all commercial growers and gardeners.

This volume, compiled by several authors, describes a different set of standard composts for growing pot plants, based on research carried out at the University of California. They confirm much of the work done in England. There is one essential difference from composts as we know them—loam is not used. The difficulties of getting loam in California have led to the use of peat/sand mixtures in varying proportions, plus organic and inorganic fertilizers. Five such mixtures are recommended, together with six different groups of fertilizers for each mixture. Such a variety could, in practice, probably be reduced, as many of the fertilizer mixtures are rather similar. Since the authors state that the nursery has yet to be built that fully uses the U.C. System, and later acknowledge that seldom can a theory be developed for practical use by research confined to a laboratory, there may well be some simplification as the mixtures become better known. In a later chapter twelve Californian nurseries describe how, with some success, the mixtures are gradually replacing those previously used.

The early chapters set out the grower's problem of crop management and disease control in relation to composts. Other chapters deal very fully with the principles of sterilization, methods of handling soil and the necessary equipment. No fewer than thirty-five types of equipment for sterilizing soil are described and illustrated. Some of them are new and would be well worth a trial. Mixing the compost first, then filling the pots, boxes, etc., and finally sterilizing the filled containers is strongly recommended. Clearly this treatment eliminates the risk of disease re-contamination and introduces a method we have been unable to advise with other mixtures.

The principles of heat treatment of soil, its objectives and definitions are given in great detail and contain much technical information difficult to come by in such a handy form.

Later chapters deal with chemical soil treatments, harmful and beneficial soil organisms and their controlled colonization, and mechanization of the U.C. System as used in California.

The book, of three hundred pages, is well produced and its subject-matter well presented and indexed. One could question some of the authors' reasonings where comparisons are made between the methods used in England and those recommended. In some cases it is unbalanced or even contradictory. But it is a good book and should be read by all enterprising growers and those who advise growers. I know of no other where so much information on the subject of pot plants can be bought at the price and in a single volume.

J. NEWELL

The following books have been received:

"Chrysanthemums." Ministry of Agriculture, Fisheries and Food, Bulletin No. 92. 5th ed. 56 pp. Illus. (H.M.S.O.) 4*s*.

"Shelterbelts and Microclimate." By J. M. Caborn. Forestry Commission, Bulletin No. 29. 135 pp. Illus. (Edinburgh: H.M.S.O.) 17*s*. 6*d*.

"Index of Agricultural Research 1957." Agricultural Research Council. 189 pp. (Cambridge University Press.) 12*s*. 6*d*.

ERRATUM

WISLEY TRIALS—Perennial Asters—R.H.S. JOURNAL, 83, March, 1958, p. 127, 'Professor Kippenberg'. This was raised by Messrs. Ernst Benary, Hann, Muenden, and not by Messrs. Kayser & Seibart as stated.

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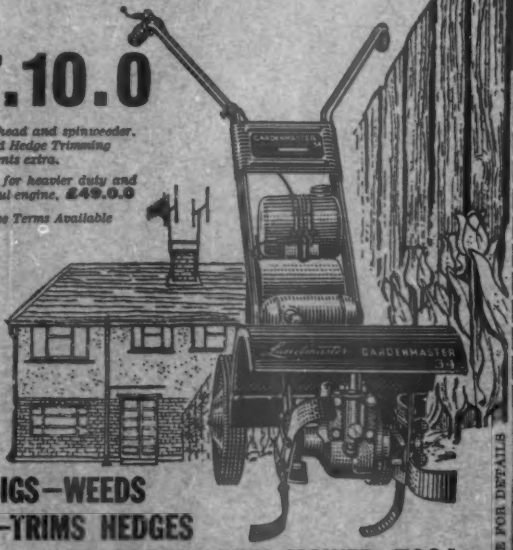

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